MESSAGE DU MINISTRE DE L'ENVIRONNEMENT

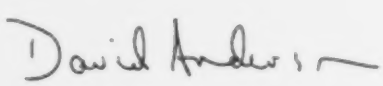
J'ai le plaisir de vous présenter le huitième rapport annuel du gouvernement du Canada, intitulé *Progrès en matière de prévention de la pollution*, qui illustre les progrès réalisés par le gouvernement fédéral, sur le plan opérationnel et stratégique, pour la période d'avril 2002 à mars 2003.

Les activités décrites dans ce rapport donnent suite à *La prévention de la pollution : Une stratégie fédérale de mise en œuvre* (1995), qui résume la ligne de conduite du gouvernement relativement à l'avancement de la prévention de la pollution en tant qu'approche prioritaire visant la protection de l'environnement. Cette approche comporte fréquemment d'importants avantages économiques et sanitaires puisqu'elle favorise la prise de décisions plus judicieuses quant à la manière dont nous fonctionnons.

Ce rapport démontre clairement que les ministères fédéraux sont résolus à adopter une approche plus viable en matière de protection environnementale au Canada. Notre premier rapport, diffusé pour la période 1995-1996, renfermait des renseignements communiqués par six ministères. Aujourd'hui, je suis heureux de souligner que 26 ministères et organismes gouvernementaux ont collaboré à la rédaction de ce rapport et que ces derniers prennent, dans le cadre de leurs activités quotidiennes, des mesures concrètes en vue de lutter contre la pollution. Ensemble, ils préconisent une attitude préventive fondée sur l'élaboration de lignes directrices, de lois et de programmes nationaux et internationaux.

En 2002-2003, le gouvernement fédéral a poursuivi la mise en application de mesures visant à réduire l'incidence de ses activités sur la qualité de l'air et les changements climatiques. Des initiatives, notamment « Prêcher par l'exemple », sont axées sur la réduction des émissions de gaz à effet de serre des immeubles appartenant à la Couronne ou gérés par cette dernière. Non seulement ces efforts nous permettent-ils de respecter nos obligations dans le cadre du Protocole de Kyoto mais elles démontrent que le gouvernement fédéral souscrit véritablement au principe du développement durable.

J'espère que vous prendrez plaisir à lire *Progrès en matière de prévention de la pollution 2002-2003*. Ce rapport fournit la preuve que nous sommes de plus en plus près de réaliser nos objectifs en matière d'assainissement de l'air, de l'eau et de l'environnement au profit des générations futures de Canadiennes et de Canadiens.



David Anderson, c.p., député
Ministre de l'Environnement

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MESSAGE FROM THE MINISTER OF THE ENVIRONMENT

I am pleased to present the Government of Canada's eighth annual *Progress in Pollution Prevention* report, which illustrates the operational and policy advances the federal government made between April 2002 and March 2003.

The activities described in this report implement *Pollution Prevention – A Federal Strategy for Action* (1995), the Government's policy for advancing pollution prevention as a priority approach to environmental protection. This approach to environmental protection often offers important economic and health benefits, by making better decisions about how we do business.

This report is a clear indication that federal departments are committed to taking a more sustainable approach to environmental protection in Canada. Our first report, published for the year 1995-1996, included information submitted by six departments. With the 2002-2003 report, I am pleased to acknowledge the contributions of 26 government departments and agencies that are making pollution prevention a reality in their everyday operations. Together, they are promoting the preventive ethic, through policy, legislation, and national and international programs.

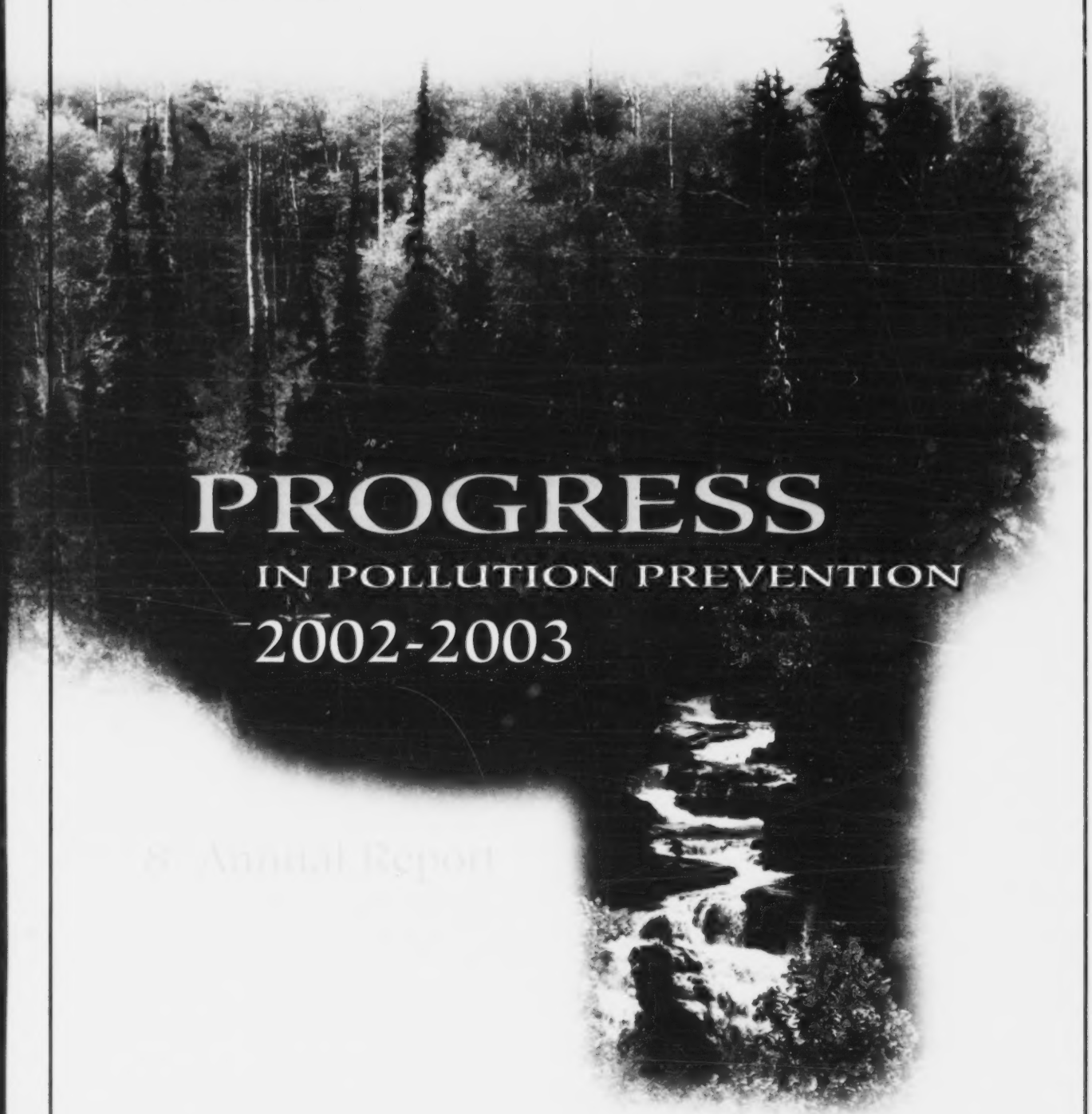
Throughout 2002-2003, the federal government continued to implement measures that will reduce the impact of its operations on air quality and climate change. Initiatives such as the Federal House in Order are addressing the reduction of greenhouse gas emissions from federally owned or operated buildings. These efforts not only help us meet our commitments under the Kyoto Protocol, but show that the federal government is fully committed to sustainable development.

I hope that you will enjoy reading *Progress in Pollution Prevention 2002-2003*. It clearly demonstrates that we are moving closer to our goals of having clean air, clean water, and a healthy environment for future generations of Canadians.

David Anderson

David Anderson, P.C., M.P.
Minister of the Environment

Government of Canada / Gouvernement du Canada



PROGRESS
IN POLLUTION PREVENTION
2002-2003

Canada

Progress in Pollution Prevention 2002-2003: Annual Report of the Pollution Prevention Coordinating Committee

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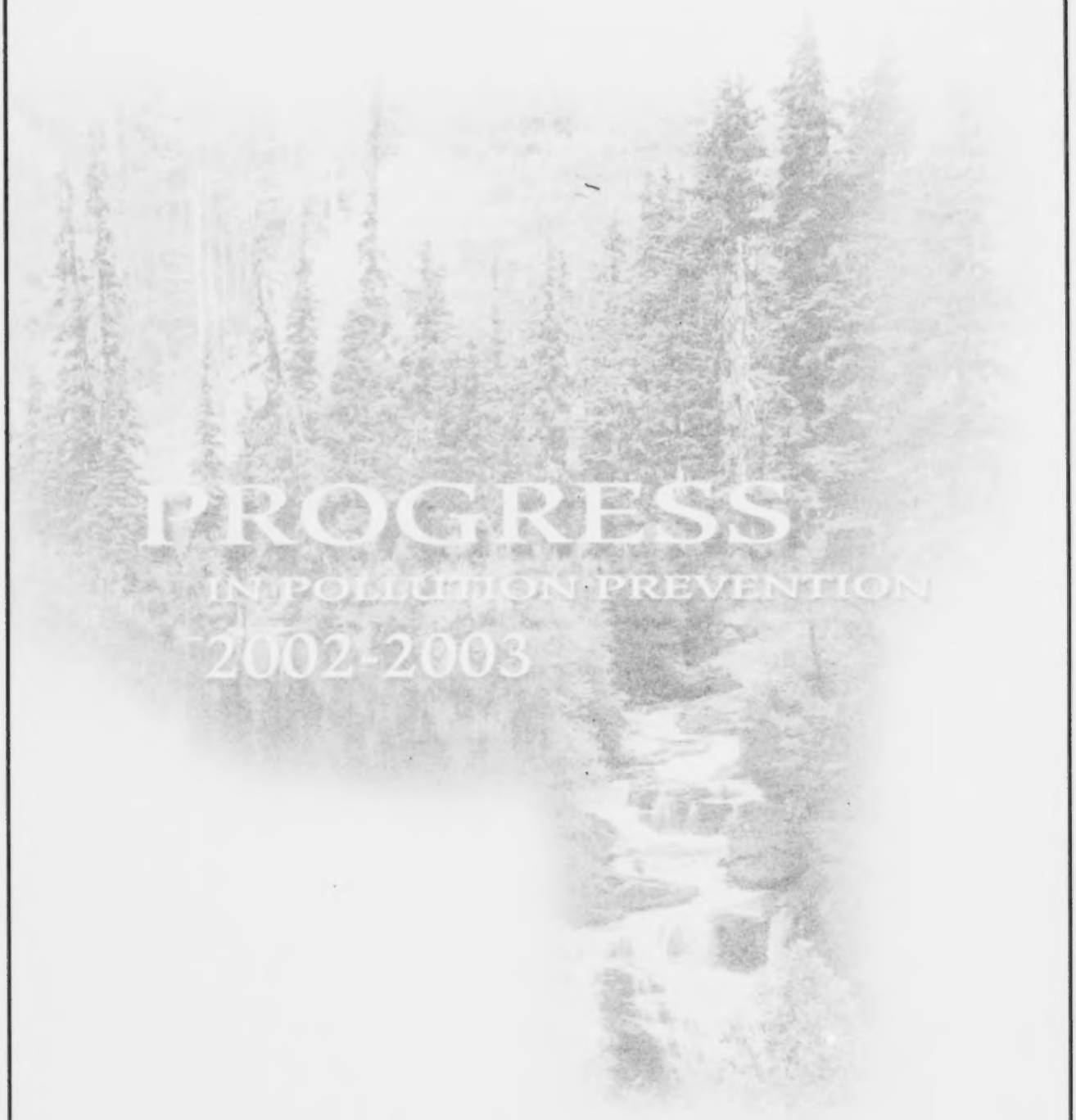
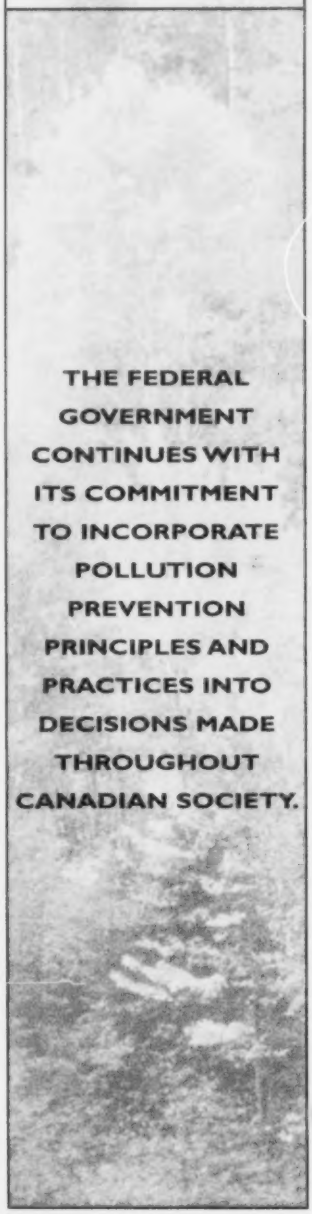


PROGRESS IN POLLUTION PREVENTION 2002-2003

Canada



THE FEDERAL GOVERNMENT CONTINUES WITH ITS COMMITMENT TO INCORPORATE POLLUTION PREVENTION PRINCIPLES AND PRACTICES INTO DECISIONS MADE THROUGHOUT CANADIAN SOCIETY.

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Executive Summary

Progress in Pollution Prevention 2002–2003 showcases the federal government's achievements in incorporating pollution prevention into its own activities and those of its partners. This is the eighth annual report prepared by Environment Canada with the support and contribution of 25 other federal government departments and agencies. The report focuses on the progress made between April 1, 2002, and March 31, 2003, against the goals stated in the Federal Pollution Prevention Strategy and Action Plan and demonstrates the federal government's leadership in and commitment to pollution prevention.

Pollution Prevention—A Federal Strategy for Action sets priorities for action based on five target sectors: federal departments and agencies, other orders of government, the private sector, individual Canadians and the international community. By directing efforts towards preventing pollution instead of managing pollution after it has been created, the federal strategy works towards sustainable development.

Changes to the Format of the Report

This year's report has been designed to clearly show the importance of measuring progress in pollution prevention. The report identifies the learning opportunities that exist in addressing the challenges associated with varying data collection techniques, using common means of measurement and measuring a change in behaviour. For instance, *Progress in Pollution Prevention 2002–2003* features a new subsection within Section 1, Measuring Progress in Pollution Prevention, which highlights the efforts of government departments to address the challenges associated with pollution prevention measurement. The report also includes a table on transferable pollution prevention initiatives to encourage all government departments to seize pollution prevention opportunities within their own operations. In addition, there has been greater emphasis placed on featuring lessons learned, so that government departments can learn from each other's experiences. There are new subsections on Sustainable Transportation Choices and Event Planning in Section 2. Also, within Section 4, a new subsection on Labour has been added, and Forestry and Wood Products has been added to the subsection on Sector-Specific Initiatives. In physical appearance, this year's report has undergone significant changes in the design of both the cover and the layout.

Progress within the Federal Government

Implementing the *Canadian Environmental Protection Act, 1999* requirements for managing risks to the environment and human health associated with toxic substances remained a key focus. Proposed pollution prevention planning notices were published for two toxic substances, and consultations continued on notices for other substances. Key achievements on the regulatory side included regulations that will reduce the use of tetrachloroethylene in the dry cleaning sector by 70% by the year 2005. As well, regulations were introduced to address the solvent degreasing sector, targeting reductions in the use of trichloroethylene and tetrachloroethylene. In addition, new regulations were promulgated under the *Fisheries Act*, whereby world-class standards will be implemented throughout Canada for the mining sector. Proposed regulations were also developed targeting benzene, acetaldehyde, acrolein and 1,3-butadiene. In 2002–2003, the Canadian Council of Ministers of the Environment (CCME) endorsed Canada-wide Standards for Dioxins and Furans for Steel Manufacturing Electric Arc Furnaces and for Iron Sintering Plants. In addition, precursors to PM (particulate matter) and ozone and its precursors, were added to the list of toxic substances in 2003, providing the federal government with the tools necessary to implement its commitment under the CCME Canada-wide Standards.

Federal departments demonstrated leadership by integrating pollution prevention in the operations of their own facilities. Prevention-based measures were taken in the following areas: departmental policy integration, waste reduction, energy efficiency/water conservation, operations/facility management, vehicle fleet management, procurement, training and awareness, sustainable transportation choices, and event planning. The departments and agencies that participate in the Sustainable Development in Government Operations initiative (those that prepare Sustainable Development Strategies) continued to collaborate in efforts to green government operations and in reporting the results of these efforts.

Progress with Other Governments

The development of regional or Canada-wide strategies for the management of pollutants and toxic substances continues to be relevant and a high priority through the Canadian Council of Ministers of the Environment (CCME).

The CCME continues to give national recognition to companies and organizations showing innovation and leadership in P2. The 2002 CCME P2 Awards were presented to Aurum Experience Ltd. of Rocky Mountain House, Alberta; Informco, Inc. of Scarborough, Ontario; Novopharm Ltd. of Toronto, Ontario; The City of Toronto Works & Emergency Services Department, Water & Wastewater Services Division, Industrial Waste & Storm Water Quality Unit, of Toronto, Ontario; the Labour Environmental Alliance Society of British Columbia; the Mountain Equipment Co-op facility in Winnipeg, Manitoba; and, Alberta-Pacific Industries Inc. of Boyle, Alberta.

Municipal wastewater is an ongoing focus for the federal and provincial governments. Other areas of note that demonstrate the effectiveness of locally based action

include reduction of vehicle idling and residential pesticide use, promotion of pollution prevention benefits to small and medium-sized enterprises and improved community energy management. Regional initiatives continue to show success in ecosystem protection and restoration and in developing sustainable communities. Key partnerships were made with Aboriginal communities to help Canadians reduce pollutants and improve health.

Progress with the Private Sector

Federal departments are involved in effective initiatives and programs in sectors such as agriculture and food, building design, forestry and wood products, printing and graphics, tourism and transportation. Providing resources for the delivery of demonstration projects, guidance materials and training programs further advances the adoption of the preventative approach.

Successful voluntary agreements and programs continue to be of particular importance. There is an ongoing focus on small to medium-sized enterprises, especially their need for information, both general and sector specific, on pollution prevention and other programs, resources and funding across Canada.

In keeping with CCME's goal of cost-effective actions to minimize releases of mercury and its compounds, a Canada-wide Standard for reducing environmental releases of dental amalgam has been developed. This Canada-wide Standard seeks to significantly improve the capture of amalgam wastes through best management practices.

Progress with the Canadian Public

Community-based action involving Canadians is an effective way to address issues such as water conservation, proper sewage disposal, air pollution, pesticide use and pollution prevention awareness. The Canadian Pollution Prevention Information Clearinghouse and Canadian Pollution Prevention Success Stories websites continue to provide Canadians with access to high-quality and reliable information resources on pollution prevention.

Canadians are increasingly applying sustainable transportation thinking in their daily lives. The Commuter Options Strategy and initiatives that encourage the use of public transit and discourage vehicle idling are building momentum.

Progress with the International Community

Canada has continued to implement and support activities to reduce or prevent pollution in different regions around the world.

There was ongoing fulfilment by Canada of obligations under the Stockholm Convention on Persistent Organic Pollutants through the provision of new and increased resources to assist, encourage and equip developing countries and countries with economies in transition to build their own capacity to reduce or eliminate releases of these pollutants.

Canada continues to promote, facilitate and/or finance the transfer of environmentally sound technologies that address the causes and effects of climate change in developing countries, while at the same time contributing to sustainable development and poverty reduction, through projects in places throughout Asia, South America and Africa.

In North America, work is under way, through the Commission of Environmental Cooperation, to reduce the exposure of North American ecosystems to mercury through the prevention and reduction of releases of mercury to the environment.

Trends and Future Opportunities

For the past eight years, the federal Pollution Prevention Strategy has been the foundation for promoting the use of processes, practices, materials, products, substances and energy that avoid or minimize the creation of pollutants and waste. The number of departments and agencies reporting pollution prevention activities has increased over the past eight years from six in the first annual report to a total of 26 for 2002–2003.

The pollution prevention successes and lessons learned in 2002–2003 establish the Government of Canada in a stronger position, able to identify future opportunities to promote pollution prevention as the preferred method for protecting the environment and improving economic competitiveness.

The Value of Reporting

Progress in Pollution Prevention 2002–2003 demonstrates the collective commitment on the part of federal departments and agencies to implement and improve upon pollution prevention techniques and processes within their own operations and as a means to engage external stakeholders. It also demonstrates that pollution prevention techniques and processes are evolving into the mainstream of daily decision-making locally, nationally and globally.

The Pollution Prevention Framework

The legislation and policies that form the federal government's commitment to protect human health and the environment establish a strong pollution prevention framework.

Pollution Prevention and its Linkages with Other Environmental Concepts

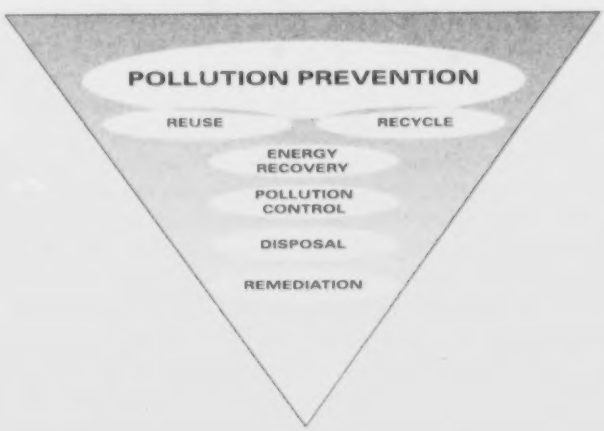
The federal government defines pollution prevention (P2) as "the use of processes, practices, materials, products, substances or energy that avoid or minimize the creation of pollutants and waste, and reduce overall risk to human health or the environment."[1] The goal of P2 is to eliminate the causes of pollution rather than be required to manage the waste after it has been generated. P2 involves continuous improvement through design, technical, operational and behavioural changes. It also encourages transformations that frequently lead to lower production costs, increased efficiencies and more effective protection of the environment.

P2 practices and techniques focus on such areas as substances of concern, efficient use and conservation of natural resources, reuse and recycling on site, materials and feedstock substitution, operating efficiencies, training, procurement techniques, product design, process changes, product reformulation, equipment modifications and clean production.

P2:

- minimizes or avoids the creation of pollutants;
- prevents the transfer of pollutants from one medium to another;
- accelerates the reduction and/or elimination of pollutants;
- minimizes health risks;
- promotes the development of source reduction technologies;
- uses energy, materials and resources more efficiently;
- reduces the need for costly enforcement;
- limits future liability with greater certainty;
- recognizes that waste is a cost that can be reduced;
- avoids costly cleanup in the future;
- promotes a more competitive economy; and
- fosters the principles of sustainable development.

THE ENVIRONMENTAL PROTECTION HIERARCHY



Moving up the hierarchy is a step in the P2 direction.

[1] *Canadian Environmental Protection Act, 1999*

The Connections between Sustainability, Pollution Prevention and Environmental Management Systems

P2 is the preferred environmental approach for attaining sustainability. It stands at the top of the environmental protection hierarchy as the environmental management tool of choice, so that, whenever feasible, pollution or waste should be prevented or reduced at the source. Reducing material, energy and water usage through improved efficiency is also considered P2. An environmental management system (EMS) is a systematic way of applying the P2 approach. An EMS can be designed to address only environmental compliance and not P2. However, many leading organizations are building P2 goals into their EMSs, so that continuous environmental improvement becomes an organizational priority. Some organizations are even trying to build sustainability into their EMSs. Sustainability paradigms such as Natural Step are used to evaluate impacts and action plans to determine if the organization is moving towards sustainability.

At a Glance Interrelationships

Attribute	Sustainability	Pollution Prevention	Environmental Management Systems
Definition	Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.[1]	The use of processes, practices, materials, products, substances or energy that avoid or minimize the creation of pollutants and waste, and reduce overall risk to human health or the environment.[2]	A framework developed by an organization to help improve its environmental performance by taking environmental considerations into account when making decisions and managing risks.[3]
Core mission / goals	To integrate the three pillars — environmental, economic and social considerations — into decision-making.	To eliminate the causes of pollution rather than manage the waste generated.	To provide an organization with the assurance that its environmental performance not only meets, but will continue to meet, its legal and policy requirements.
Scale	Provides an all-encompassing vision that examines an organization's operations and their relationship to the community.	Involves improvement through design, technical, operational and behavioural changes.	Integrates an organization's structure, planning activities, responsibilities, practices, procedures and resources for the purpose of developing, implementing, achieving, reviewing and maintaining the environmental policy.
Area of focus	Integrity of natural environment, enhancing human development, equity, democracy and civility, precaution and seeking mutually supportive benefits.	Human processes and practices; material and energy use; and behavioural changes.	Information management from various sources, such as legal requirements, training records, operational procedures, and performance data.

[1] World Commission on Environment and Development (Gro Harlem Brundtland, chair). 1987. "From One Earth to One World: An Overview," from *Our Common Future* (Oxford/New York: Oxford University Press), p. 8.
[2] *Canadian Environmental Protection Act, 1999*.
[3] Greening Government Operations, Government of Canada.

Examples of Pollution Prevention Opportunities Available to Government Departments

Activity	Opportunities	Examples and Success Factors
Event planning	• Develop green guidelines for meeting facilities	Environment Canada participated in four carbon-neutral conferencing initiatives in 2002. Carbon-neutral conferencing is based on the Kyoto principles of emissions trading and allows for the greenhouse gas emissions associated with conference activities to be offset through the purchase of carbon credits. The first step to hosting a carbon-neutral event is to ensure that a green meeting strategy has been incorporated, to reduce emissions from the outset of the event.
Employee commuting	• Participate in Commuter Challenge • Parking policy gives degree of preference to carpoolers • Consider incentive programs	Natural Resources Canada's Laurentian Forestry Centre encourages its employees to use bicycles during the warmer seasons. In 2002–2003, the result was a substantial increase in bicycle use, public transit and carpooling. In 2001–2002, there were three or four individuals who biked to work, while in 2002–2003, it was not unusual to see nearly 30 bikes a day in fair weather.
Employee travel	• Provide listing of Greenleaf hotels • Policy establishing preference for Greenleaf hotels for travel and for meeting facilities	Western Economic Diversification Canada has provided a list of green hotels in the "Government Accommodation Guide." The initiative is to raise awareness and encourage the use of environmentally responsible hotels. The Royal Canadian Mounted Police have adopted green hotel practices in their barracks accommodations throughout the Northwest Region of Canada.
Water/energy conservation	• General environmental awareness programs • Energy performance contracting • Federal Buildings Initiative	The Green Passport Program is a reward program developed by Public Works and Government Services Canada—Pacific Region to encourage employees to think about and practise environmental responsibility. Participants earn points based on performing environmentally friendly activities and then can claim prizes when established point levels are achieved.
Employee participation	• Consider employee brainstorming sessions to identify and undertake P2 activities	The Corporate Services Branch of Health Canada engaged its laboratory scientists in a brainstorming session on what P2 is, where they are doing P2, and where they could improve. Senior management will review the ideas and make suggestions on implementation.
Waste reduction	• Emphasize reduction and reuse within waste management programs • Consider establishing a materials reuse centre in large office buildings	Human Resources Development Canada established an eyeglass collection program in partnership with the Christian Blind Mission. This program aims to collect used eyeglasses and then distribute them to developing countries for reuse.

For more information on these or other transferable P2 initiatives, you may visit the National Office of Pollution Prevention website at http://www.ec.gc.ca/nopp.

Federal Pollution Prevention Strategy

Pollution Prevention—A Federal Strategy for Action is the Government of Canada's policy framework for advancing P2 as the priority approach to environmental protection. Approved by Cabinet in June 1995, the strategy elaborates on government policy and sets priorities for action based on five goals involving partnerships with federal departments and agencies, other orders of government, the private sector, individual Canadians and the international community.

"Pollution Prevention—A Federal Strategy for Action promotes the practice of pollution prevention throughout federal government programs and operations."

The goals of the federal P2 strategy include the following:

- Within the federal government: Institutionalize P2 across all federal government activities.
- With other governments: Foster a national P2 effort.
- With the private sector: Achieve a climate in which P2 becomes a major consideration in industrial activities.
- With all Canadians: Provide access to the information and tools necessary to implement P2 practices.
- With the international community: Participate in international P2 initiatives.

The strategy can be viewed at http://www.ec.gc.ca/pollution/strategy/.

Federal Pollution Prevention Coordinating Committee

The federal Pollution Prevention Coordinating Committee (P2C2) was established in 1992 and is chaired by Environment Canada. It collectively promotes the implementation of *Pollution Prevention — A Federal Strategy for Action* by encouraging the practice of P2 throughout the federal government and with the federal government's clients. The current committee membership, listed in Appendix I, includes representatives from 13 federal departments:

- Environment Canada
- Agriculture and Agri-Food Canada
- Canadian International Development Agency
- Fisheries and Oceans Canada
- Foreign Affairs and International Trade
- Health Canada
- Human Resources Development Canada
- Industry Canada
- National Defence
- Natural Resources Canada
- Public Works and Government Services Canada
- Statistics Canada
- Transport Canada

Progress in Pollution Prevention was first published in 1996. This annual report informs Canadians and government officials of national progress in P2, highlighting P2 achievements and successes across the country. By relating progress to the five target sectors of the Federal Pollution Prevention Strategy and Action Plan, this report provides a framework for monitoring performance, profiling federal environmental successes and assessing progress made towards the goals of the federal strategy.

Including the members of the P2C2, 26 federal departments and agencies contributed to this eighth annual report (see Appendix II), emphasizing the continued integration of P2 across the federal government and demonstrating federal interdepartmental collaboration.

Testimonials from the Pollution Prevention Coordinating Committee

"The report is a forum for sharing our successes and also for getting great ideas from other departments. The project summaries provided by other departments are used by Environment Canada—Ontario Region to brainstorm new ideas, and we try to replicate those successes in our own projects. We also view this report as an opportunity to provide recognition to our partners and to promote their beyond compliance activities." — *Lori Fryzuk, Environment Canada—Ontario Region*

"The Department supports the Coordinating Committee and has found it to be a worthwhile forum to share ideas. The Committee has encouraged interdepartmental cooperation while eliminating duplication of individual efforts. We have gained knowledge on pollution prevention initiatives, technologies and progress. The Pollution Prevention reports are utilized as references for new initiatives being undertaken, trends in pollution prevention and as a means to highlight some of the pollution prevention efforts of the Department." — *Kelly Thom, Foreign Affairs and International Trade*

"By contributing to the report, our Department has been able to raise the overall awareness of P2 and its related benefits. Similarly, the report serves as a great vehicle to profile local initiatives at our Bases and Facilities. This type of recognition is not only rewarding for those organizations that contributed to the

report, but it also encourages continued efforts towards implementing P2 initiatives. Our Department uses the report to foster the sharing of P2 related information, as well as communicate our internal P2 successes across our Commands and Headquarter organizations." — *Sean Baptiste, National Defence*

"The P2C2 report reminds us of the work we have done and forget to recognize. The department is getting better at identifying opportunities and projects that promote pollution prevention. Instead of labeling them as such, we simply believe in them as good projects. When we are asked to report on the P2C2, it reminds us that projects we support are beyond being good projects, they are good practice and support for pollution prevention." — *Anastasia Lim, Western Economic Diversification Canada*

National Commitment to Pollution Prevention

Within Canada, federal, provincial, territorial, municipal and Aboriginal governments share jurisdiction for the environment. The Canadian Council of Ministers of the Environment (CCME) is Canada's premier forum for intergovernmental discussion and action on environmental issues. The CCME comprises environment ministers from the federal, provincial and territorial governments, with a mandate to improve environmental protection and promote sustainable development in Canada.

In 1993, the CCME contributed to the evolution of P2 in Canada by releasing the statement entitled *National Commitment to Pollution Prevention*. In May 1996, the CCME again addressed the issue by releasing *A Strategy to Fulfill the CCME Commitment to Pollution Prevention*. This strategy sets out a shared vision, mission and goal statement, as well as guiding principles for the implementation of P2 by all provinces, territories and the federal government. As part of the strategy, the CCME jurisdictions adopted a common definition of P2: "The use of processes, practices, materials, products or energy that avoid or minimize the creation of pollutants and wastes, at the source." As stated in the CCME strategy, P2 is a shared responsibility among governments, individuals and industrial, commercial, institutional and community sectors. To show its support for P2, the CCME presents P2 awards annually and maintains a Pollution Prevention Network. The Network serves as a forum for information exchange among its members on an ad hoc basis and provides technical support to the CCME Pollution Prevention Awards Program.

The Government of Canada, with stakeholders in the private sector, environmental non-government organizations, communities, labour and academia, is putting P2 into practice through a mix of regulatory, non-regulatory and economic instruments. This includes modernizing legislation and regulations, managing national programs, developing guidelines and codes of practice for industrial operations, establishing Canada-wide Standards for specific substances, supporting voluntary initiatives, ensuring accessibility of tools and information and implementing international agreements.

Key Pollution Prevention Policies and Regulations

Environmental Performance Agreement Policy Framework, 2001	2001
Canadian Environmental Protection Act, 1999	2000
Sustainable Development in Government Operations, A Coordinated Approach	2000
CCME Policy for the Management of Toxic Substances	1998
A Strategy to Fulfill the CCME Commitment to Pollution Prevention	1996
Pollution Prevention — A Federal Strategy for Action	1995
Greening of Government Operations Policy	1995
The Act to Amend the Auditor General Act pertaining to sustainable development strategies	1995
Toxic Substances Management Policy	1995
CCME National Commitment to Pollution Prevention	1993

Measuring Progress in Pollution Prevention

Measuring P2 progress is important. It helps us to identify and understand trends and conditions in the environment and public health, locally and globally. In addition, measured environmental results help us assess the effectiveness and progress of environmental programs and initiatives and help government departments decide where to implement effective environmental improvements.

The main challenge in measuring P2 progress is the lack of common means of measurement to determine the effectiveness or success of P2 programs in altering behaviour as a whole. For example, some departments measure actual quantities or costs to gauge a facility's total impact on the environment, while others may use qualitative data that describe the activities or actions that promote environmental efforts or improvements. Due to the varying metrics and data collection techniques used across departments, it remains a challenge to quantify nationwide progress on P2. It is also a significant challenge to measure change in behaviour as a result of a P2 outreach activity. There are numerous outreach activities profiled within this report, including workshops, brochures and pilot projects; the difficulties remain on how to measure their impact on behaviour. Another common challenge facing government departments is the resources involved in gathering the follow-up data. Most projects are designed for implementation and do not include a specific follow-up component. Many projects have subtle or residual effects that continue long after the project is delivered, sometimes in areas of influence not envisioned by the original authors.

Government departments are starting to address the P2 measurement challenge by creating systems that track and report P2 progress. Agriculture and Agri-Food Canada is developing a web-based database and reporting system for environment-related information called an Environmental Information and Performance Management System. The system will track progress and maintain accurate inventories in key areas of environmental performance, thereby helping the department report on P2 progress for the P2 annual progress report. Environment Canada—Ontario Region is investigating a data collection system that will track quantitative and measurable results for its P2 initiatives. This system will allow the region to measure the degree to which it is meeting deliverables, measure value added, calculate the impact of programs and set priorities and future directions.

Progress within the Federal Government

Federal pollution prevention strategy goal: Institutionalize pollution prevention across all federal government activities.

National Programs

Legislation and Regulations

The Canadian Environmental Protection Act, 1999 (CEPA 1999) recognizes the importance of P2 planning. Part 4 provisions allow the federal government to require the preparation and implementation of P2 plans for specific toxic substances. Environment Canada has initiated the process of requiring plans in respect of specific substances on the List of Toxic Substances. P2 planning is a systematic, comprehensive method of identifying options to minimize or avoid the creation of pollutants or waste. It is best applied to an entire process or facility. The more comprehensive the planning process, the more likely it will focus on the root causes of problems, identify the most cost-effective P2 opportunities and avoid inappropriate trade-offs (such as substituting one toxic substance for another). Plans should be tailored to the needs of the organization, forming an integral part of its existing business plan. For more information, visit the Environment Canada website at http://www.ec.gc.ca/NOPP/P2P/en/P2plan.cfm.

Below are consultation highlights from 2002–2003. **Update**

- In May 2002, a proposed P2 planning notice was published in the *Canada Gazette* for acrylonitrile. The objective of the acrylonitrile P2 planning notice is to reduce releases of acrylonitrile from synthetic rubber manufacturing sources to the lowest achievable levels by 2005 through the application of the best available techniques that are economically achievable.

- In August 2002, a proposed P2 planning notice was published in the *Canada Gazette* for dichloromethane. The objective of the dichloromethane P2 planning notice is an aggregate 85% reduction in emissions by 2007 (compared with 1995 levels) from five industrial sectors: aircraft paint stripping, flexible polyurethane foam blowing, pharmaceutical and chemical intermediates, adhesive formulations and industrial cleaning.

- In November 2002, Environment Canada completed initial cross-Canada consultations for a proposed P2 planning notice for ammonia, inorganic chloramines and chlorinated wastewater effluents. P2 planning is proposed as a first step towards a long-term strategy for managing the municipal wastewater effluents sector to ensure that, across the country, the release of wastewater effluents does not pose unacceptable risks to human health, ecosystem health or fishery resources. Consultations will continue until December 2004, as the notice is finalized and published. For more information, visit Environment Canada's website on municipal wastewater effluents at http://www.ec.gc.ca/etad/default.asp?lang=En&n=9F3404CF-1.

- Consultations are under way for a proposed P2 planning requirement with the wet processing textile mill sector for textile mill effluents and nonylphenol and its ethoxylates. One objective is to reduce the use of nonylphenol and its ethoxylates from the wet processing textile industry by 97% from 1998 levels, by 2009. The other objective is to reduce the toxicity of effluents from textile mills that use wet processes to levels that are significantly less harmful to the environment.

- There are ongoing consultations with manufacturers and importers of products containing nonylphenol and its ethoxylates for a proposed P2 planning requirement. The objective is to reduce nonylphenol and its ethoxylates in the products covered by the P2 planning notice by 95% for the calendar year January 1 to December 31, 2010.

Several promotional and assistance tools have been developed for those subject to a P2 planning notice. These tools promote the concept of P2 and P2 planning. These include an online P2 planning tutorial at http://www.ec.gc.ca/NOPP/P2TUT and a series of fact sheets on P2 best practices and activities that individual Canadians, companies and government departments can incorporate into everyday life at http://www.ec.gc.ca/NOPP/DOCS/FACT. **New**

Part 8 of CEPA 1999 provides authority to require environmental emergency (E2) plans for substances once they have been declared toxic by the Ministers of Environment and Health (s. 199). In 2002–2003, all remaining substances currently on the List of Toxic Substances (Schedule 1 of CEPA 1999) or substances that have been assessed as toxic and recommended for addition to the list were evaluated for possible E2 plan requirements using the E2 Planning Risk Evaluation Framework. An E2 plan outlines a facility's preparations and procedures to reduce the likelihood and consequences of an E2 involving toxic substances. Part of the overall risk management process should consider not only possible quantity reductions for substances used but also opportunities for product substitution. During 2002–2003, Environment Canada's Environmental Emergencies program continued the development of a regulation under s. 200 of Part 8 of CEPA 1999 that requires the preparation and implementation of E2 plans for those facilities that use any of 174 listed substances at or above specified thresholds or store them in containers at or above the same thresholds. Substances have been included for their toxic, flammable or other hazardous properties. The regulation can be viewed on the *Canada Gazette* website at http://canadagazette.gc.ca/partII-e.html/2003/20030910/html/sor307-e.html. **Update**

Public Works and Government Services Canada is developing Environmental Emergency Response Plans (EERPs) for facilities equal to or greater than 10 000 m^2 in size. As of March 2003, 81 of 107 (76%) departmental facilities larger than 10 000 m^2 have prepared voluntary EERPs. Departmental facilities less than 10 000 m^2 in size within Ontario and Pacific regions have also voluntarily prepared EERPs. Similarly, Environment Canada—Atlantic Region staff continue to minimize the impact of land development and spills through the identification of resources at risk and assistance with spill prevention, containment and cleanup strategies. In April 2002, Environment Canada launched a web-based version of its mapping program. **Update**

Federal Climate Change Commitment

Federal House in Order is an initiative to encourage the reduction of greenhouse gas (GHG) emissions within federal operations. The initiative involves 11 departments and agencies that together account for an estimated 95% of all Government of Canada GHG emissions. Federal House in Order is led by Environment Canada and Natural Resources Canada. Public Works and Government Services Canada became a co-chair later in 2003.

The Government of Canada has committed to reporting annually on its GHG emission reduction achievements to the Voluntary Challenge and Registry, and it received Gold Level reporting status in its 2003 update report entitled *Emissions Reductions from Federal Operations*.[2] Highlights include the following:

- The Government of Canada Action Plan 2000 on Climate Change announced a revised GHG emissions target of a 31% reduction from 1990 levels by the year 2010.
- The Government of Canada has reduced its energy use and has switched to cleaner fuels, thereby reducing total GHG emissions by 24% between 1990 and 2001.

Further information can be found by visiting the Federal House in Order website at http://www.fhio.gc.ca.

Toxic Substances

Under CEPA 1999, substances are found to be "toxic" if they pose a significant risk to the health of Canadians and the environment. In order to manage these substances, the Act requires that preventative and control measures be developed within strict legislative timelines. Part 5 of CEPA 1999 provides the authorization to develop regulations that are used to control the manufacture, use and release of toxic substances. The Toxic Substances Management Policy outlines the federal government's risk management process for toxic substances based on two key objectives: virtual elimination from the environment of toxic substances that are persistent, bioaccumulative and primarily the result of human activity (Track 1) and life cycle management of other toxic substances and substances of concern to prevent or minimize their release into the environment (Track 2). Environment Canada applies a P2 approach and the precautionary principle to the management of both Track 1 and Track 2 substances. Domestic action has already been taken to limit or prohibit the manufacturing, use, importation or release of identified substances.

Key achievements, by sector, appear in the table on page 14. Included are regulations that require dry cleaners to shift to more efficient technology, which will result in a 70% reduction in use of tetrachloroethylene by 2005. Similarly, regulations addressing the solvent degreasing sector, which is the other major source of release of tetrachloroethylene, aim to freeze the quantity of tetrachloroethylene that can be used and thus reduce its use by 65% by 2007. Furthermore, new regulations were also promulgated under the *Fisheries Act*, whereby world-class standards will be implemented throughout the Canadian mining sector. The *Metal Mining Effluent*

[2] *This update report provides current emissions data for 2001.*

Key Achievements in Managing Substances Found Toxic under CEPA and CEPA 1999

Targeted Sectors[1]	Achievements in 2002–2003
Dry cleaning (tetrachloroethylene)	• *Tetrachloroethylene* (Use in Dry Cleaning and Reporting Requirements) *Regulations* in force
Solvent degreasing (tetrachloroethylene, trichloroethylene)	• Proposed *Solvent Degreasing Regulations* published in the *Canada Gazette*
Steel manufacturing (benzene, inorganic arsenic compounds, inorganic cadmium compounds, oxidic, sulphidic and soluble inorganic nickel compounds, polycyclic aromatic hydrocarbons, dioxins/furans)	• Canada-wide Standard for Dioxins and Furans: Steel Manufacturing Electric Arc Furnaces endorsed by the CCME • Canada-wide Standard for Dioxins and Furans: Iron Sintering Plants endorsed by the CCME • CEPA Codes of Practice published, and Code conformance by steel mills being reviewed by third party
Base metal smelters (inorganic arsenic compounds, inorganic cadmium compounds, oxidic, sulphidic and soluble inorganic nickel compounds, releases from copper smelters and refineries and zinc plants)	• CEPA Codes of Practice and CEPA Pollution Prevention Plan Requests being considered
Targeted Substances[2]	**Achievements in 2002–2003**
Benzene	• Proposed *Regulations Amending the Benzene in Gasoline Regulations* published in the *Canada Gazette* • *On-Road Vehicle and Engine Emission Regulations* in place (come into force in 2004) • Proposed *Off-Road Small Spark-Ignition Engine Emission Regulations* published in the *Canada Gazette* • Proposed *Environmental Emergency Regulations* published in the *Canada Gazette*
Dichloromethane	• Proposed Notice Requesting the Preparation and Implementation of Pollution Prevention Plans published in the *Canada Gazette*
Benzidine, benzidine dihydrochloride, hexachlorobenzene	• *Prohibition of Certain Toxic Substances Regulations, 2003* in force
Acetaldehyde, acrolein, 1,3-butadiene	• *On-Road Vehicle and Engine Emission Regulations* in place (come into force in 2004) • Proposed *Off-Road Small Spark-Ignition Engine Emission Regulations* published in the *Canada Gazette* • Proposed *Environmental Emergency Regulations* published in the *Canada Gazette*

[1] Substances found to be toxic from Priority Substances List 1.
[2] Substances found to be toxic from Priority Substances Lists 1 and 2.

Regulations require all mines in Canada to meet these new standards and to participate in an environmental effects monitoring program, which will determine the effectiveness of these regulations. Forty-four substances on the first Priority Substances List (PSL1) were assessed under the Priority Substances Program by 1994. Of these, 25 were found to be toxic. Management options, developed in consultation with stakeholders, have been adopted for a number of sectors and substances, and work is proceeding on those remaining.

A second Priority Substances List (PSL2) was published in 1995, with 25 additional substances. Actions on these substances are being developed as part of a substance-specific or sector-specific risk management strategy that presents the approach taken, the proposed management objectives and proposed risk management measures. Consultations will be held on these strategies and during the subsequent development of risk management tools.

In addition, precursors to PM (particulate matter) and ozone and its precursors, were added to the list of toxic substances in 2003, providing the federal government with the tools necessary to implement its commitment under the CCME Canada-wide Standards.

A complete list of the substances found toxic as a result of the PSL1 and PSL2 assessments conducted under the former *Canadian Environmental Protection Act* and the current Act (CEPA 1999), as well as the measures that Environment Canada has put in place to manage these substances, can be found at http://www.ec.gc.ca/toxics. Such measures include risk management strategies for each toxic substance, as well as the status of the development of preventative and control instruments.

The New Substances Program, under Parts 5 and 6 of CEPA 1999, is an integral part of the federal government's approach to P2. The program ensures that no new substances (i.e., chemicals, polymers and inanimate and animate products of biotechnology) are introduced into the Canadian marketplace before they have been assessed to determine whether or not they are toxic or capable of becoming toxic to the environment or human health. The risks of substances determined to be, or suspected of being, toxic or capable of becoming toxic may be managed, as necessary, through the imposition of conditions or the prohibition of their import or manufacture. The New Substances Program operates under the *New Substances Notification Regulations* and is jointly administered by Environment Canada and Health Canada. The New Substances Program recently underwent public consultations for the chemical and polymer portion of its regulations, out of which came 76 recommendations for the improvement of the *New Substances Notification Regulations* and the New Substances Program. The recommendations for improvement are in five areas: Risk Assessments, Regulatory Framework, Transparency, Responsiveness of the Regulations and the New Substances Program in an International Context, and Service Delivery. Over 900 new substances notifications were received by Environment Canada and Health Canada in 2002–2003. For more information, visit the New Substances Program website at http://www.ec.gc.ca/substances/nsb/eng/index_e.htm. **Update**

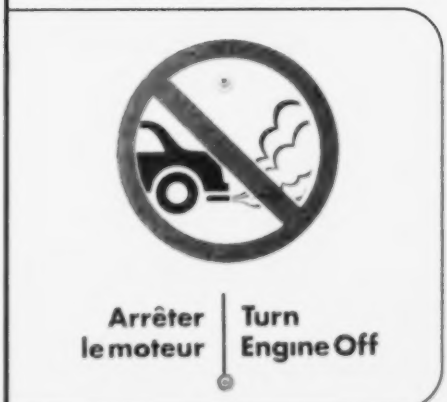
Environment Canada's Mercury and the Environment website at http://www.ec.gc.ca/mercury provides information on what measures people can take to reduce mercury use and its releases. Environment Canada also serves on a task force, with the United States and Mexico, that is responsible for developing the North American Regional Action Plan on Mercury. The plan calls for joint and individual efforts to reduce the exposure of North American ecosystems to mercury. **Update**

Clean Air/Water

The National Pollutant Release Inventory (NPRI) tracks and provides Canadians with access to information on the releases and transfers of key pollutants and related P2 activities by industrial and commercial facilities located in their communities. For the 2002 reporting year, 2 534 facilities reported at least one type of P2 activity. Approximately 26% of all P2 activities reported in 2001 were in the form of "good operating practices or training." Beginning with the 2002 reporting year, the NPRI reporting form includes a further breakdown of each of the P2 reporting categories. This further subdivision of categories was added following consultation with stakeholders in 2001. The new categories will assist reporting facilities in identifying activities within their facilities that can be reported as a P2 activity. In addition, the 2002 NPRI reporting form features additional questions pertaining to the implementation of P2 plans. These questions will help develop a more complete picture of P2 in Canada. For more information, visit the NPRI website at http://www.ec.gc.ca/pdb/npri. **Update**

"The NPRI provides Canadians with access to information on the releases and transfers of key pollutants. Beginning in 2002, the NPRI began collecting information on the implementation of P2 plans."

"In June 2002, Environment Canada conducted an anti-idling campaign at its two biggest buildings in the National Capital Region, Les Terrasses de la Chaudière and Place Vincent Massey."



In June 2002, Environment Canada conducted an anti-idling campaign at its two biggest buildings in the National Capital Region, Les Terrasses de la Chaudière and Place Vincent Massey. During the eight days of the anti-idling campaign, volunteers observed more than 1 150 drivers who had left their engines running unnecessarily. In total, these drivers left their engines idling for more than 50 hours and released 161 kilograms of carbon dioxide into the atmosphere. The goal of the campaign was to raise awareness (through the use of communication products such as brochures, posters, window stickers and signs) about the negative impacts of idling vehicles at drop-off and pick-up areas. The buildings have been permanently designated idle-free zones. As a result, drivers stopping at these buildings for longer than 10 to 20 seconds, including taxis, are encouraged to turn off their engines. Plans are under way to take the campaign to other Government of Canada facilities through the Federal House in Order Leadership Challenge. For more information, visit the Leadership Challenge website at http://www.fhio-ifppe.gc.ca.

Environment Canada's National Office of Pollution Prevention works with federal departments that own or operate waste incinerators to ensure that they achieve the Canada-wide Standards for Mercury Emissions as set out by the CCME. Implementation activities include both P2 and pollution control approaches. **New**

Policy Integration

Environmental assessment (EA) is a tool used by the federal government, under the *Canadian Environmental Assessment Act*, to ensure that potential adverse environmental effects of proposed projects are identified and mitigated where possible. An EA provides a proven systematic approach for identifying, predicting, evaluating and mitigating the potential environmental effects of proposed projects before irrevocable decisions are made. Additionally, through strategic EA, P2 considerations are incorporated into decision-making, including policy, plan and program proposals. This guarantees that environmental implications are taken into account by decision-makers in the same way that social, economic and policy factors are considered. Environment Canada's EA program incorporates P2 objectives and approaches into EA by recommending that proponents establish programs that apply P2 and best management practices. Through EA, the Government of Canada works closely with provincial and territorial governments and the private sector in areas such as mining, oil sands development, energy production and natural gas pipelines. **Update**

Among other federal departments, Transport Canada uses strategic EA as a way to ensure that the environmental consequences of plans, policies and program proposals are taken into account and addressed at the planning stage, before decisions are made. In the fiscal year of 2002–2003, the department trained 42 people in strategic EA. **Update**

P2 training specific to EA, along with broader awareness material, was delivered to staff of Foreign Affairs and International Trade by Public Works and Government Services Canada. Five staff attended the workshops in 2002–2003. The P2 knowledge acquired in this course will help staff determine the environmental impacts of proposed projects and recommend whether the projects should proceed. **New**

Western Economic Diversification Canada has been working to improve the consistency and quality of EA screening reports for water and wastewater projects as part of delivering the Infrastructure Canada Program in Alberta and Saskatchewan. The Model Class Screening Report serves as a template for the review and examination of P2 options for sewer and water infrastructure projects. For more information, visit the Infrastructure Canada Program website at http://www.wd.gc.ca/ced/infrastructure/definition_e.asp. **New**

In 2002, Human Resources Development Canada (HRDC) undertook steps towards the development of a departmental Pollution Prevention Plan. A document was created that identifies potential opportunities for integrating P2 principles into a number of operational activities and program areas, such as purchasing, waste management, water and energy conservation and vehicle fleet management. Within HRDC, Financial and Administrative Services is responsible for implementing the actions. **New**

The Canadian Economic Development Agency signed a cooperation agreement with Environment Canada-Quebec Region to provide the technical and scientific support for small and medium-sized enterprises (SMEs) on project implementation for the development of technologies, products and services relating to the environment, sustainable development and P2. In 2002–2003, the Agency and its partners supported projects that focused on wastewater, mining, marine biotechnology and innovative forest products. **Update**

The principles of P2 are fully incorporated in the nine Environmental Guidelines that were developed by Correctional Services Canada (CSC) and finalized in 2002–2003. The guidelines are now an integral part of

how the CSC does business and will be reviewed periodically in light of relevant legislative changes and/or developments in the area of best ecological practices and environmental technologies. The challenges in this area continue to be the inherent limitations in the financial and human resources allocated to CSC's environmental program; therefore, the department endeavours to identify methods that offer the highest cost-benefit ratio. **New**

Government Operations

The Government of Canada is committed to making government greener by promoting the adoption of P2 and environmentally responsible approaches and practices in each of its departments and agencies. This portion of the report outlines P2 and other environmental initiatives undertaken by government departments in 2002–2003.

Sustainable Development and Environmental Management Systems

The 1995 amendments to the *Auditor General Act* require numerous federal departments and agencies to table sustainable development strategies in Parliament, outlining departmental goals for integrating sustainable development into their policies, programs and operations, and to update these strategies every three years. The second round of sustainable development strategies was tabled in February 2001. In renewing their sustainable development strategies, departments took deliberate steps to strengthen management systems to ensure implementation. They also emphasized collaboration with common goals shared across portfolios. Eight priority areas were identified for coordinated action and planning, including sustainable development in the North, sustainability in Canadian communities, promoting eco-efficient practices in the private sector and sustainable development in government operations.

Canada's Commissioner of the Environment and Sustainable Development monitors the extent to which departments and agencies have met the objectives and implemented the action plans set out in their strategies. These annual reviews and each department's individual sustainable development strategy can be viewed on the Office of the Auditor General of Canada's website at http://www.oag-bvg.gc.ca/.

An EMS provides a systematic framework to help an organization manage its environmental obligations and document, evaluate and communicate its environmental performance. A new EMS Task Group, struck under the Sustainable Development in Government Operations (SDGO) Director General's Coordinating Committee and co-chaired by Environment Canada and Transport Canada, replaces the Federal Committee on Environmental Management Systems (FCEMS). The EMS Task Group is streamlining committees and working groups that previously reported to the FCEMS. The Task Group continues the efforts started under the FCEMS to promote the effective implementation of departmental EMSs. Some examples of effective implementation of EMSs appear below.

In 2002–2003, the Canadian Food Inspection Agency (CFIA) implemented a national EMS across its regional facilities. The CFIA also developed a National EMS Manual that will guide implementation of area/site-specific EMSs and minimize the environmental impact of CFIA activities. For example, within CFIA labs, there are standard operating procedures for activities such as farm and livestock operations, boiler and generator management, energy management and fleet management. The Agency will continue to provide and document training for area EMS teams. **Update**

Interdepartmental Cooperation on Pollution Prevention and Environmental Management

Federal departments and agencies often share interests, mandates or responsibilities for government operations and sustainable development. Participation in interdepartmental groups is essential for developing common tools, coordinating activities and sharing information.

Federal interdepartmental mechanisms in place to promote coordination on environmental management activities include:

- Deputy Ministers' Environment and Sustainable Development Coordinating Committee
- Assistant Deputy Ministers' Committee on Environment and Sustainable Development
- Interdepartmental Network on Sustainable Development Strategies
- Assistant Deputy Ministers' Sustainable Federal House in Order Committee
- Sustainable Development in Government Operations (SDGO) Director General's Coordinating Committee
    - SDGO Guidance Task Group
    - Green Procurement Task Group
    - Environmental Management Systems Task Group
    - Sustainable Real Property Task Group
- Director General's Toxic Substances Management Committee
- Pollution Prevention Coordinating Committee
- Federal House in Order Coordinating Committee
- Interdepartmental Advisory Group on Water Conservation at Federal Facilities
- Regional Federal Councils

Transport Canada has revamped its EMS Manual to be web-based; as a result, its employees can view the manual electronically, find the most current information possible and update their own regional EMS manuals. P2 initiatives within the EMS include fuel reduction through fleet management, prevention of stormwater contamination through a glycol monitoring program and prevention of greenhouse gas (GHG) emissions through the Green Commute Program. The department is also updating its Environmental website at http://www.tc.gc.ca/environment/menu.htm#environmental. Similarly, in early 2003, HRDC launched an internal website with an emphasis on P2 awareness. The site provides an environmental laws database, sustainable development links, the department's Environmental Action Plan and an online training course on energy, water, vehicles, procurement and compliance. **Update**

Fisheries and Oceans Canada continues to implement its integrated occupational health and safety and environmental management system for the Institute of Ocean Science and Pacific Geosciences Centre in British Columbia. P2 is an integral part of the management system and will be adopted through training and procedures implementation. The department is also in the preliminary stages of implementing EMSs at its Parry Sound, Kenora, Hay River and Yellowknife bases. The department's Marine Environmental Management Program is being used on 12 of the department's vessels. **Update**

Parks Canada's EMS is based on the ISO14001 standard. The agency has also developed a set of national online interactive action plan registries and tracking databases to efficiently build customized environmental management action plans and to enter data for national reporting. Within its EMS, Parks Canada has set a target to reduce its GHG emissions by 5.2% (3 000 tonnes) from 1998 levels by 2010. Efforts to achieve this target include retrofitting buildings, purchasing more efficient vehicles and switching to "cleaner" fuels. **New**

In January 2003, the Royal Canadian Mounted Police's (RCMP) Environmental Policy was adopted in support of its Sustainable Development Strategy. This policy commits the RCMP to continuous improvement in P2. It is also the cornerstone of an EMS that is being readied for implementation. **New**

"In January 2003, the Royal Canadian Mounted Police's (RCMP) Environmental Policy was adopted. The policy commits the RCMP to continuous improvement in P2."

Precautionary Principle

The Rio Declaration Precautionary Principle states that "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

Adoption of the Rio definition of the precautionary principle into CEPA 1999 has triggered efforts to prepare a framework for its use in Canada. The framework outlines guiding principles for the application of precaution to science-based decision-making in areas of federal regulatory activity for the protection of health and safety, and the environment and the conservation of natural resources. Ultimately, the framework provides a lens to assess whether precautionary decision-making is in keeping with Canadians' social, environmental and economic values and priorities.

Sustainable Development in Government Operations (SDGO)

SDGO is a government-wide initiative, established in early 2000 to meet the government's commitment to environmental excellence in its own operations. The SDGO initiative coordinates the efforts to green government operations and report collectively on progress. The initiative involves the 25 departments and agencies that are required by legislation to prepare sustainable development strategies and 3 departments and agencies that voluntarily prepare sustainable development strategies.

The SDGO initiative is co-led by three departments: Environment Canada, Natural Resources Canada, and Public Works and Government Services Canada. Environment Canada continues to administer a web portal facilitating access to information, best practices and tools related to greening government generally and to the SDGO initiative specifically. Public Works and Government Services Canada continues its efforts at building regional capacity for coordinated greening of federal operations.

Natural Resources Canada, on behalf of the initiative, produced the first aggregate report, *Greening the Federal House*, on the status of federal operations in six areas pertaining to the operational impact on the environment. This is the first time that information in the areas of Solid Non-hazardous Waste Management, Water Conservation and Wastewater Management as well as Green Procurement has been collected on a broad scale. The report also provides an overview of the activities in three other areas—Energy Efficiency/Buildings, Vehicle Fleet Management and Land Use Management—that are already being monitored by other mechanisms.

Departments are encouraged to follow best practice examples as outlined in the priority areas below. To learn about best practices, find helpful links or read the report, visit the greening government website at **http://www.greeninggovernment.gc.ca.**

Priority Area	Examples of P2 Practices and Techniques
Waste	
• Identify waste reduction opportunities, taking advantage of existing auditing tools and procedures. • Develop and implement a waste reduction action plan, including an awareness program for employees. • Separate waste streams at source to facilitate reuse, recycling and proper disposal.	• Reducing inputs and waste. • Reuse and recycle on site. • Operating efficiencies and training.
Water Conservation and Wastewater Management	
• Identify water savings opportunities, taking advantage of existing audit tools and procedures. • Develop and implement a water conservation plan. • Specify water-saving equipment and devices for future purchases, such as water-efficient fixtures, including toilets, faucets, showerheads and appliances.	• Ensure hazardous materials are disposed of properly. • Reduce the water volume to water treatment facilities.
Energy Efficiency/Buildings	
• Develop and implement energy management plans, including preventative maintenance (guidelines are available under the Natural Resources Canada Federal Buildings Initiative). • Implement all economically attractive energy retrofits. • Take advantage of the Federal Buildings Initiative, which provides products and services in support of the above activities.	• Procurement of renewable energy or green power. • Energy-saving equipment and devices, such as those marked with the ENERGY STAR symbol, specified for future purchases, e.g., energy-efficient lighting, at http://oee.nrcan.gc.ca/energystar/english/.
Vehicle Fleet	
• Manage fleet vehicles in accordance with economic and environmental objectives of the Treasury Board Motor Vehicle Policy being developed in partnership with Natural Resources Canada and Environment Canada. • Wherever possible, use low-sulphur diesel and ethanol—gasoline blends, meeting environmental specifications. • Purchase original equipment manufactured alternative fuel vehicles or retrofit vehicles where life cycle costs are comparable to those of gasoline or diesel-fuelled vehicles.	• Purchase small, more energy efficient vehicles (e.g., hybrid vehicles). • Number of vehicles for departmental use reduced.
Procurement	
• Evaluate potential purchases as outlined in Treasury Board's Material Management Environmental Guidelines. • Consistent with Canada's international trade obligations, purchase products and services that meet environmental specifications wherever these are available, and consider life cycle costs. In some cases, this could involve a small price differential. • Provide green procurement training to officers with purchasing authority to improve decision-making, such as Implementing Environmental Purchasing Policies, available from Environment Canada.	Purchasing products with environmental labelling: • ENERGY STAR at http://oee.nrcan.gc.ca/energystar/english/; • EcoLogo at http://www.environmentalchoice.ca; and • Greenleaf hotels at http://greenleafwi.areaguides.net/hotels.html.

Priority Area	Examples of P2 Practices and Techniques
Human Resources Management	
• Consistent with Treasury Board's personnel policy, adopt human resource management practices that foster innovative working arrangements, such as job sharing and working from home, which support environmental objectives. • Infuse environmental awareness into all training programs, particularly orientation training.	Awareness programs: • Commuter Challenge at http://www.commuterchallenge.ca/; and • Paper Save and Zero Waste Program at http://www.greeninggovernment.gc.ca/default.asp?lang=En&n=9697C298-11. Training available to public service employees: • Energy efficiency workshops (delivered by Natural Resources Canada); and • Pollution Prevention Practitioners Course and Certificate (delivered by the Canadian Centre for Pollution Prevention).
Land Use	
• The identification, classification and assessment of sites of concern on departmental lands should be undertaken using the CCME National Classification System or a similar tool. • The management of risk to human health and the environment should include risk assessment and techniques for containment, mitigation and remediation. • Site remediation objectives should be based on the existing CCME Environmental Quality Criteria as appropriate or the CCME Risk Assessment Framework for Ecological and Human Health Effects, for risk-based remediation plans.	• Planting hardy and native plants that need less pesticides and water. • Phasing out the use of hazardous substances.

Environment Canada—Prairie and Northern Region continues to implement EMSs at four of its facilities based on the ISO14000 series of standards. Facilities with an EMS range from isolated weather stations in the high Arctic to research facilities and warehouses in urban settings. For instance, Prairie and Northern Wildlife Research Centre has implemented P2 through its facility-wide EMS. The facility has converted all 55 of its fire extinguishers to non-halon extinguishers, and all the building lighting was upgraded in 2002 to T-8 lamps and electrical ballasts in all fluorescent fixtures, with a net reduction in power of approximately 40% in the levels by lighting load. **New**

Waste Reduction

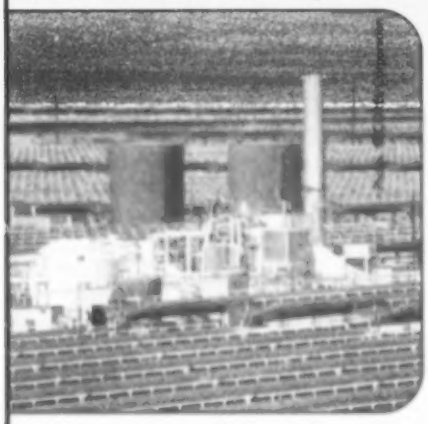
All federal departments have set targets to reduce waste sent to landfill. Approximately 67% of HRDC personnel have access to programs for source reduction and materials reuse, exceeding the target within the Sustainable Development Strategy of 50% of personnel by March 31, 2002. Similarly, within the Department of National Defence, waste reduction initiatives have been put into place at all Canadian Forces Support Unit Ottawa sites in an effort to divert 3% more waste from landfill by 2004 compared with 2000–2001. As of 2002–2003, 100% of the facilities have implemented a waste reduction program. For example, the kitchens at Connaught Range Primary Training Centre and Military Stores Building composted over 10 000 kilograms of organic waste in 2002–2003. **Update**

In 2002–2003, many federal departments undertook construction, renovation or demolition projects. Agriculture and Agri-Food Canada diverted from landfill approximately 90% of building demolition wastes from four demolished buildings located at the Lethbridge Research Centre. This 90% reduction in waste destined for landfill was achieved through recycling and the reuse of equipment such as boilers, air compressors and hot water tanks. The RCMP also have a plan for diverting windows, doors, wood, bricks and electrical equipment. **Update**

Statistics Canada has dramatically reduced paper use. In 2002–2003, approximately 900 000 fewer printed pages were generated. The percentage of publications available electronically has remained at 62%. The department continues to investigate new avenues to expand electronic distribution of its publications. In the National Capital Region, Public Works and Government Services Canada reduced paper telephone directories by 40% (from 4 045 to 2 462) by encouraging an electronic alternative to the 2003 telephone directory. **Update**

In 2002–2003, Fisheries and Oceans Canada's Newfoundland Region made investments in technologies that will

"Since the inception of the light station solarization program, Fisheries and Oceans Canada has converted 20 remote light stations."



reduce the amount of hazardous wastes generated. At the Hay River Canadian Coast Guard Base, a waste oil furnace was purchased, thus using waste oil that would otherwise require disposal at a significant cost, saving over 5 000 litres of waste oil annually. A solvent recycling system was installed at the Buoy Maintenance Facility in St. John's, Newfoundland, reducing waste solvents by 2 000 litres per year. Similarly, formaldehyde-recycling equipment was purchased at the Maurice Lamontagne Institute. **New**

In 2002–2003, seven facilities within Canadian Forces Support Unit Ottawa participated in the Green Move Program. The program collects and redistributes office materials that otherwise would have been disposed of during a move. From one move alone, over 12 000 kilograms of materials were redistributed, saving $2 000 in landfill costs. Materials that Crown Assets is not interested in are donated to non-profit organizations, such as the Ottawa-Carleton District School Board. **New**

Justice Canada, in an effort to reduce paper usage, piloted the Barrister's Briefcase Project. In 2002–2003, 294 934 pages were electronically managed and provided to federal government litigators. Efforts are now under way to fully deploy the electronic document management system, which will significantly reduce paper waste and file storage requirements. **New**

The Public Service Commission continues to have in effect its environmental code, which was developed in 1990. This code provides a framework for Commission employees to make their workplace environmentally friendly. This framework includes recommendations for the reduction, reuse and recycling of office supplies and materials used by the Commission in everyday applications. For instance, office supplies such as staplers, binders and furniture are sent to a central location, where other employees can reuse them. In addition, the Commission continues to deal with firms that specialize in "green products". **New**

Energy Efficiency/ Water Conservation

The Federal Buildings Initiative (FBI) is designed to facilitate energy efficiency upgrades and building retrofits for departments, agencies and Crown corporations of the Government of Canada. In 2002–2003, Natural Resources Canada oversaw the achievement of $1 million worth of incremental energy savings, improving energy intensity[1] by 20% and reducing GHG emissions by 15–20%. Communications Research Centre Canada (CRC), an agency of Industry Canada, manages nearly 100 buildings within the Shirley's Bay Campus in Ottawa. Through the FBI, the CRC Campus Energy Action Team worked with private business to develop an efficient energy savings plan for campus buildings that has resulted in a 41% savings in energy and a 59% savings in water usage over the past five years.

Carbon dioxide emissions have been reduced by approximately 5 000 tonnes per year. Past work included replacing and upgrading old equipment and installing energy-efficient lighting and other resource-saving devices. In 2002–2003, work continued with the installation of motion detectors for lighting and the promotion of the campus energy education program using the innovative "Amp Champ" cartoon series. The RCMP also commenced an FBI energy savings program at Regina's Training Academy, with an estimated annual energy savings of $600 000, with a GHG emission reduction of 4 968 kilotonnes of carbon dioxide equivalent[2] per year. Energy audits were also done by the New Brunswick Power utility at various detachments in the Atlantic region. For more information on the FBI, visit the Office of Energy Efficiency website at http://oee.nrcan.gc.ca. **Update**

Fisheries and Oceans Canada installed solar power systems at remote light stations to replace electricity supplied by on-site diesel generators. This change led to the removal of 16 fuel storage tanks. Since the inception of the light station solarization program, the department has converted 20 remote light stations. The program has eliminated the potential for petroleum releases from fuel transfer and tank failure at these facilities, while reducing carbon dioxide emissions by approximately 740 tonnes. **Update**

The Atlantic Canada Opportunities Agency has partnered with Natural Resources Canada on an energy efficiency and renewable energy initiative for Atlantic Canada. The objective is to increase Atlantic Canada's use of Natural Resource Canada's Industrial Energy Efficiency Audit Program and Renewable Energy Research and Development Program. In 2003, industrial energy efficiency in the manufacturing sector was studied. **Update**

[1] Energy intensity is the total energy consumed by a sector divided by the total amount of activity in that sector over a one-year period.

[2] Carbon dioxide equivalent is a standard measure for GHG emissions, which include carbon dioxide, methane, nitrous oxide and sulphur hexafluoride.

"The main objective of Enviroclub™ for federal facilities is to help federal agencies involved in environmental or operations management to carry out P2 projects within their organization."

During 2002–2003, National Defence used approximately 20 billion litres of treated water—a 10% reduction from 2000–2001. The reduction of treated water consumption will remain a priority for continual improvement. **Update**

An Energy Monitoring Protocol was created to promote effective and responsible management of energy consumption in Correctional Services Canada's (CSC) institutions. The Protocol tracks the total amount of energy, except for vehicle fuel, that is purchased by each institution or complex. The department also has a Water Consumption Monitoring Protocol to monitor and promote water conservation. Water conservation measures help to reduce the harmful environmental impacts of withdrawing, treating and using groundwater and surface water and of treating wastewater. **New**

Parks Canada's Master Plan for the Reduction of Greenhouse Gas Emissions provides guidance and direction on opportunities for emission reductions, such as energy efficiency of its buildings, facilities and fleet. In most cases, this will be achieved by reducing the consumption of fossil fuels and electricity or switching to a "cleaner" fuel type. The program will save money in operating costs as a result of retrofitting buildings to be more energy efficient and purchasing more efficient vehicles. **New**

Operations/Facility Management

In 2002–2003, Canadian Forces Base Kingston, in conjunction with Environment Canada-Ontario Region, Federal Programs Division, developed a "Mercury Products and Inventory Manual for Federal Facilities." The manual assists with identifying, replacing and recycling mercury-containing equipment. In addition to the manual, a database has also been created to record the specific inventory information obtained. Efforts are also under way to reduce the number of new mercury-containing products installed at federal facilities. Environment Canada will work with other federal departments to encourage life cycle management of mercury-containing products. It will also work with industry and jurisdictions where lamps are manufactured in an effort to meet the Canada-wide Standard for Mercury-Containing Lamps as set out by the CCME. **New**

By converting from a dual- to a single-boiler operation during the winter months, an Agriculture and Agri-Food Canada facility in Guelph, Ontario, was able to reduce its heat loss and as a result its annual carbon dioxide emissions by 978 kilograms. This was accomplished by installing a pressure sensor on the steam system that is connected to the building's automation system. Chemical waste was also reduced as a result of this conversion. The facility also cut back on boiler cycling and lowered the operating pressure from 689 to 414 kilopascals as another measure to reduce heat loss and improve system efficiency. It is estimated that these measures will reduce annual carbon dioxide emissions by an additional 1 232 kilograms and will reduce the use of sulphite and sludge conditioner. Within the same facility, a thermodrive distilled water system was connected to the building's automation system. In the past, cooling water from the unit would be wasted to the drain while the unit was not being supplied with steam. The unit now operates only when the boiler is operating, saving approximately 5 455 litres of water per day. The department also installed a new energy-efficient cooling tower, which replaced a unit containing chlorofluorocarbons. **New**

Enviroclub™ for federal facilities is a pilot project coordinated and delivered by Environment Canada—Quebec Region. The project, launched in May 2001, will end in September 2003. Its main objective is to help federal facilities involved in environmental or operations management carry out P2 projects within their organization. The project has three components: training and awareness for participants in P2-related fields; facility visits to identify P2 opportunities; and implementation and follow-up of each partner's P2 projects. The following federal departments are involved in implementing 11 P2 projects: National Defence, Canada Economic Development, Parks Canada, Montreal Port Authority, Transport Canada, Public Works and Government Services Canada, Correctional Services Canada, and Indian and Northern Affairs Canada. In total, the 11 federal partners achieved the following reductions: 20 tonnes of carbon dioxide equivalent, 7 500 litres of gasoline, 330 litres of varsol, 3.5 kilograms of nonylphenol ethoxylates, 435 litres of hazardous waste, 205 litres of sulphuric acid and 42 kilograms of 2-butoxyethanol. The total number of staff who attended the training workshops was 116. **Update**

In 2002–2003, Health Canada undertook initiatives to avoid potential fuel spills. Diesel fuel storage tank system operators were trained in the proper care and maintenance of Health Canada's fuel storage tanks. Overall, 22 fuel tank operators received training, accounting for 15% of the tank locations. Health Canada also upgraded or replaced diesel fuel storage tanks in seven First Nations communities. Similarly, many other federal departments and agencies, including Agriculture and

Agri-Food Canada and Communications Research Centre Canada, an agency of Industry Canada, have been replacing their existing fuel storage tanks, which store various forms of hydrocarbons and chemicals, with new models that can detect if and when products enter the cavity between the primary and secondary tank shells. This technology upgrade minimizes the risk of, and potential liability for, soil and groundwater contamination. **New**

In 2002–2003, a hazardous materials assessment was completed for each of the 13 Canadian Forces Support Unit Ottawa reserve unit facilities. Recommendations included proper storage and handling equipment for hazardous materials, proper placement of storage areas and use of signage. Implementation of the recommendations from the assessment, coupled with the courses given in spill response, will assist in the prevention of spills and their potential impacts on the environment. Similarly, National Defence's Maritime Forces Atlantic distributed spill kits throughout Stadacona and Dockyard areas and delivered quick-response training sessions to 100 personnel. **New**

Environment Canada—Prairie and Northern Region's Atmospheric and Monitoring Division built five new energy-efficient buildings over the past four years. The new buildings made use of reusable construction materials, such as structurally insulated panels, linoleum flooring, steel framing and rubber flooring made from recycled tires for use in storage areas. Environment Canada also manages the Eureka Weather Station, an operation comparable in size to a small town or mining camp. Year-round residents produce the power for the site. A gradual increase in energy consumption was observed up to 2002, with approximately 525 000 litres of diesel consumed in 2001. During 2002, generators were able to operate more efficiently by adjusting controlling mechanisms and through awareness training of employees and contractors, resulting in a reduction to 465 000 litres of consumed diesel. **New**

Land Use

Health Canada's Scarborough, Ontario, laboratory has negotiated a new grounds-keeping contract, incorporating requirements to reduce grass-cutting frequency and to discourage grass cutting on smog alert days. The contract also requires the use of only environmentally friendly weed control products and cleaning products. Other environmental initiatives include tree planting on the property to absorb carbon dioxide emissions. **Update**

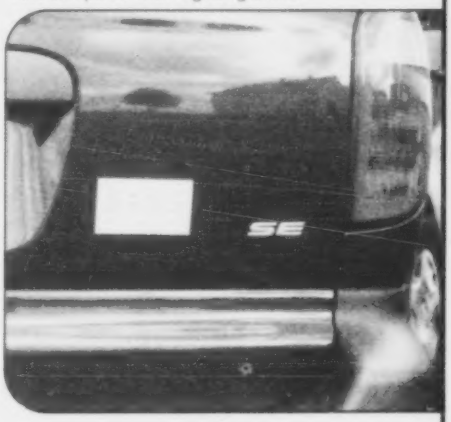
In 2002–2003, over 75% of all National Defence bases and facilities eliminated the use of pesticides for cosmetic lawn care purposes. For example, Maritime Forces Pacific (MARPAC) developed a formal Integrated Pest Management Plan and continues to seek alternatives to chemical treatments, such as steam, hand-held propane weeders and mechanical control methods, such as bark mulch. The long-term target is to have all bases and facilities eliminate the cosmetic use of pesticides by 2003–2004. In 2002–2003, reduction percentages compared with 1999–2000 totalled 86% by weight and 72% by volume. Similarly, the Canadian Food Inspection Agency (CFIA) is working with building owners within its leased facilities to adopt an Integrated Pest Management Program. This will result in a reduction in pesticide use. **Update**

Vehicle Fleet Management

The Federal Vehicles Initiative, formerly the FleetWise Program, helps federal departments improve the operational efficiency of their vehicle fleets, reduce emissions from federal operations and promote the *Alternative Fuels Act* within the federal fleet. In the total federal fleet of 24 400, there are 5 battery electric vehicles, 425 propane vehicles, 300 natural gas vehicles and 132 hybrid vehicles. Managed by Natural Resources Canada, the initiative now has 65 vehicles in the Ottawa area operating on E-85 fuel (85% ethanol). On average, E-85 reduces GHG emissions by 75% compared with regular gasoline. Across Canada, seven E-85 fuelling sites have been established, three in the Ottawa area. As more sites become established, the ability of federal departments to use this fuel will be enhanced. Use of alternative fuels by federal fleets is targeted to rise in the long term by 10%. For more information, visit the Office of Energy Efficiency website at http://oee.nrcan.gc.ca. **Update**

In its own house, Natural Resources Canada has repositioned its sectoral vehicle resources within the National Capital Region to a centralized departmental vehicle pool, whereby vehicles are rented back to clients. This management framework optimizes vehicle utilization and ensures the promotion and use of alternative fuel technology vehicles and lower-emissions fuel. Of the 60 pool vehicles, 70% are lower-emission, alternative fuel vehicles, and over 50% of the fuel consumed is cleaner burning alternative fuel. Overall, the number of vehicles department-wide that are required for the delivery of programs has been reduced by 40% since 1996. **Update**

"On average, E-85 reduces GHG emissions by 75% compared with regular gasoline."



Alternative Fuels Act for Fleet Acquisition

The *Alternative Fuels Act* will accelerate the use in Canada of alternative transportation fuels (ATFs) in motor vehicles and reduce the emission of carbon dioxide and other GHGs. The Act targets the federal vehicle fleet, thus providing the government with a leadership role in the use of ATFs.

For instance, the Act requires departments and agencies to review each new vehicle acquisition in terms of its estimated annual fuel consumption and primary operational tasks and to purchase an ATF vehicle for a minimum of 75% of cases where it would be both cost-effective and operationally feasible.

Federal departments also purchased other types of alternative fuel vehicles during 2002–2003. For instance, Agriculture and Agri-Food Canada continues to purchase vehicles that operate on E-85 fuel, while Justice Canada is encouraging its drivers to use a gasoline/ethanol blend whenever and wherever it is available. Indian and Northern Affairs Canada has a new departmental fleet policy restricting the purchase of sport utility vehicles with eight-cylinder engines. Communications Research Centre Canada, an agency of Industry Canada, is committed to reducing the impact of its vehicle fleet by purchasing alternative fuel vehicles, improving vehicle maintenance and tracking vehicle usage. As of March 2003, Public Works and Government Services Canada has a fleet of 75 alternative fuel vehicles, exceeding its target of 60 for March 31, 2004. **Update**

The Canadian Food Inspection Agency (CFIA) continues to promote to its staff new initiatives related to green driving practices. Practices include servicing vehicles regularly to optimize performance, reducing the weight that vehicles carry to improve fuel economy, maintaining correct tire pressure and reducing engine idling time. The practices will be included in the Vehicle Use Policy and will also be incorporated in each vehicle's fleet log book. In 2002–2003, the Agency exceeded the requirements of the *Alternative Fuels Act* by acquiring 121 E-85 alternative fuel vehicles out of 243 new vehicle acquisitions. **Update**

The CFIA participated in the Ontario Region Corporate Smog Action Plan initiated by Environment Canada, Health Canada and Public Works and Government Services Canada. The plan encourages the adoption of practices to reduce smog precursor emissions from federal government operations. The Agency now has a smog coordinator responsible for raising awareness on the issue of smog. **Update**

In 2003, National Defence's Directorate Support Vehicle Program Management Program installed auxiliary power units that provide 24-volt and 110-volt power on Class 8 trucks. The auxiliary power units will minimize idling time and fuel consumption. Reductions in fuel consumption are expected to be 4.4 litres of fuel per hour of idling time per vehicle. In the past, the diesel engine had to run to provide power for functions such as climate control; the auxiliary power unit now serves that function. **New**

Procurement

The federal government annually purchases several billion dollars' worth of consumer, commercial and industrial goods. The purchase of environmentally responsible goods and services presents a significant opportunity to have a positive effect on Canada's domestic market for environmental goods and services. In 1994, the Canadian Environmental Industry Strategy called for departments to increase green procurement activity and to report publicly on progress towards that objective. The term "green" procurement is used to describe the procurement of goods and services that have less impact on the environment (e.g., conserve energy, reduce waste, etc.) than other products or services that meet similar performance requirements. A Green Procurement Reporting Framework was developed to provide information in a consistent and acceptable manner to the Commissioner of the Environment and Sustainable Development. The reporting framework can be viewed on the Treasury Board website at http://www.tbs-sct.gc.ca/cmp/home-accueil.asp.

The CFIA's National Procurement and Contracting Service Centre offered its staff greener procurement training through a Public Service Commission course. Participants learned how to select green products and services for the workplace and gained a basic understanding of global warming/climate change and other major environmental issues. Simple measures, such as buying subscriptions to electronic periodicals, have resulted in substantial cost savings and eliminated paper usage. **Update**

In 2002–2003, Human Resources Development Canada (HRDC) purchased $3.25 million worth of green products and services. The department exceeded its target by 8.75% over the baseline. Its national target was to increase the amount of green procurement by 7% by March 31, 2003. **Update**

In 2003, approximately 1 150 litres of environmentally responsible cleaning products were purchased for use at various Canadian Forces Support Unit Ottawa sites, with the support of Public Works and Government Services Canada. The cleaning products are certified Environmental Choice products that have low potential for environmental illness and endocrine disruption. The long-term objective is to reduce the amount of

non-biodegradable chemicals entering the wastewater stream from janitorial activities. New

The Contracts and Material Management Section of the National Library of Canada and National Archives of Canada has developed an Environmental Checklist to assist employees who have purchasing authority in selecting environmentally appropriate products. A total of 29 National Archives of Canada employees were trained on green procurement. Similarly, 100% of Justice Canada employees who hold acquisition cards have received green procurement training. New

The Alberta Federal Council Sustainable Development Committee, co-chaired by Environment Canada and Public Works and Government Services Canada, organizes various green initiatives; these include hosting a Green Fair in Canada Place, Edmonton, which allowed departments to showcase their environmentally related work; conducting a lunchtime speaker series; launching a carpool initiative; and supporting green commuting events and green procurement training. A one-day green purchasing course was hosted in Yellowknife by Public Works and Government Services Canada, and a three-day course on green procurement and sustainable development was hosted in Edmonton by Environment Canada for procurement specialists as part of their accreditation process. New

Training and Awareness

Environment Canada—Prairie and Northern Region has Green Teams with volunteer staff members conducting various activities at each of the following office locations: Yellowknife, Iqaluit, Regina, Saskatoon, Winnipeg, Edmonton and Calgary. Activities include promotion of P2 through Earth Day and Environment Week, commuter challenges, litter-less lunches, bike clinics, vehicle emissions clinics, waste audits, an ongoing poster or staff newsletter program, perennial plant exchanges, vermi-composting and on-site reuse and recycling programs. These activities reach approximately 670 employees, and many of the site recycling and reuse programs benefit non-profit or other community groups. Other unique activities include sending shredded paper waste to local stables for horse bedding in Yellowknife and the production of one-good-side paper notepads by a local high school in Regina. New

Pollution Prevention Planning Course and Certificate

Environment Canada's National Office of Pollution Prevention and Environment Canada—Ontario Region, among other partners, contributed to the development of the two-and-a-half-day "Pollution Prevention Planning & Beyond" course. The course is directed towards P2 practitioners—professionals who are responsible for designing, implementing and maintaining P2 programs for themselves or for businesses/organizations in Canada. The course is delivered by the Canadian Centre for Pollution Prevention, a not-for-profit non-governmental organization, and is directly linked to a P2 "planner" certificate. In 2002–2003, several P2 planning seminars were delivered, and seven individuals received certificates. For more information, visit the Canadian Centre for Pollution Prevention website at http://www.c2p2online.com.

Environment Canada is helping its employees reduce their environmental footprint by providing an Environmental Practices section on the Employee Orientation site located on Infolane. The section highlights how employees can do their part with regards to greener procurement, reducing GHG emissions, waste reduction, recycling and supporting EMSs. In addition, the department also developed a strategy to reinstate a network of volunteer employees to help promote environmentally responsible behaviour in the department. The initial focus for the Green Teams will be in the National Capital Region, with a long-term vision of coordinating with its other regional offices. New

In 2002–2003, CSC delivered training on its EMS to 216 employees and managers. This accounted for a total of 405 person-days of training, or one to three persons per institution. In the event of responding to hazardous materials spills, approximately 15 institutions within CSC have received specific training on the issue of emergency spill response in addition to generic sessions given to all CSC key response personnel. New

Sustainable Transportation Choices

Transport Canada is leading a pilot project in which employees of Environment Canada, Transport Canada, Natural Resources Canada and the Treasury Board Secretariat in the National Capital Region can purchase an annual discounted transit pass through monthly payroll deductions starting October 2002. This pilot project promotes bus transit as a sustainable commuting option to Government of Canada employees in partnership with OC Transpo in Ottawa and Société de transport de l'Outaouais in Gatineau. Its success will be measured by the reductions in emissions of GHGs and other air pollutants, the level of employee participation and the increase in federal employees awareness of actions they can take. Over 900 employees have signed up for the Transit Pass Pilot Project; over 400 are from Transport Canada. It is estimated that the Transit Pass Pilot Project in its first year will reduce the number of kilometres travelled by car by 300 000, which is equivalent to approximately 45 tonnes of carbon dioxide emissions. New

In 2002, Environment Canada conducted a Commuter Options Survey of its employees in the National Capital Region. The 922 responses were analyzed, and this information has assisted in the development of a Commuter Options Strategy. The strategy will assist employees at two Environment Canada work sites in the National Capital Region—Les Terrasses de la Chaudière and Place Vincent Massey—in making sustainable commuting choices that reduce GHG emissions and improve air quality. The survey is one of the activities planned under the Federal House in Order's Leadership Challenge component to reduce outside emissions that are not directly attributable to Government of Canada operations, but are a result of government and work-related activities, such as business travel and employee commuting. **New**

The Commuter Challenge is a friendly competition between Canadian cities to see which one can cut its air pollution the most by using active and/or sustainable modes of transportation during Environment Week—the first week of June. HRDC was one of many federal departments that participated in this annual event. In 2002, 501 HRDC employees participated, equating to 5 100 kilograms of GHG emission reductions. For more information, visit the Go for Green Commuter Challenge website at http://www.commuterchallenge.ca/.

"It is estimated that the Transit Pass Pilot Project in its first year will reduce the number of kilometers traveled by car by 300 000, which is equivalent to approximately 45 tonnes of carbon dioxide emissions."

Event Planning

In 2002, Environment Canada participated in four carbon-neutral conferencing initiatives, leading to a total offset of over 4 500 tonnes of carbon dioxide equivalent. Carbon-neutral conferencing is based on the Kyoto principles of emissions trading. It allows for the GHG emissions associated with conference activities to be offset through the purchase of carbon credits. Environment Canada purchased carbon emission credits by funding international projects that led to reduced GHG emissions, while delivering high sustainability and social benefits in the countries where the projects were implemented. The department later retired the 2 000 tonnes of carbon credits from the emissions trading market through the Voluntary Challenge and Registry. The department is preparing a guide to facilitate holding carbon-neutral conferences. **New**

Environment Canada applied an EMS to the G-8 Environment Ministers' Meeting in Banff in 2002. To offset the 500 tonnes of GHG emissions, emission reduction credits were purchased from an energy-efficient housing project in South Africa. Also, hybrid vehicles were used, all electricity purchased was wind-generated and most food served was organic. **New**

Large-Scale Event Planning: Lessons Learned

- Choose a hotel that has adopted good environmental practices.
- If using an EMS, it needs to be applied early in the process, and staff need to understand its implications.
- The use of group transportation and hybrid vehicles will help reduce GHG emissions.
- The purchase of GHG reduction credits should be used only as a last measure, after all efforts have been made to reduce car and plane usage.
- Many of the greening features, such as organic food and coffee and renting hybrid vehicles, are more expensive. These additional expenses can be overcome through sponsorship from local stakeholders.

For more information on Green Meetings, visit the Environment Canada—Atlantic Region website at http://www.atl.ec.gc.ca/greenman/manual.html.

Preventing Release of Ozone-Depleting Substances

Federal activities account for about 10% of ozone-depleting substances (ODS) in use in Canada. Federal uses of halocarbons include refrigeration and air conditioning, fire suppression, solvent degreasing, sterilization, pest control and laboratories. Halocarbons are of national and international concern because they cause stratospheric ozone depletion (with a few exceptions) and contribute to climate change. Federal facilities are subject to the *Federal Halocarbons Regulations* under the provisions of CEPA 1999 on federal lands. The regulations address the P2 of ODS and certain alternatives. Many federal departments have taken action to prevent the release of ODS. For example, Agriculture and Agri-Food Canada continues to replace its R-12 refrigeration units with energy-efficient units and has reduced the quantity of ODS within its inventory. Fisheries and Oceans Canada has removed its halon systems from eight Canadian Coast Guard sites, totalling over 510 kilograms of halon. In 2002, Canadian Forces Fleet School Esquimalt, Marine Systems Engineering Division, initiated a project to trial a hydrocarbon-based refrigerant on the main refrigeration unit used to train its technicians. The use of the new refrigerant promotes the selection of suitable alternatives to substances that have ozone-depleting potential and/or global warming potential. Lastly, CSC adopted best practices in order to prevent leaks/losses of halocarbons from air conditioning and other refrigeration systems.

Upcoming Projects

National Defence's MARPAC will put in place Energy Performance Contracts encompassing more than 60 buildings associated with Canadian Forces Base Esquimalt. The contracts have been adopted by other bases and include various equipment upgrades and retrofits, such as lighting, air sealing, treated water measures, central heating plant and other energy controls. An employee awareness campaign was initiated in support of the pending contracts, and approximately 1 800 posters, 750 brochures, 1 000 light covers and 1 000 mirror stickers were distributed. Anticipated MARPAC savings are approximately $5.6 million over the next 10 years. Similarly, Maritime Forces Atlantic conducted a waste minimization opportunity assessment at Fleet Maintenance Facility Cape Scott and, in the near future, will consider implementing many of the recommendations, such as installing water meters and the reuse of chemicals/rinse water in cleaning processes.

A wind power feasibility study is under way at National Defence's Connaught Range and Primary Training Centre in Ottawa. Data will be collected for a period of two years, and a feasibility study will be conducted at the end of the monitoring period to identify options for wind power, a clean form of energy.

The Green Passport Program is a reward program developed by Public Works and Government Services Canada–Pacific Region to encourage employees to think about and practise environmental responsibility. Participants earn points based on performing environmentally responsible activities and then can claim prizes when they achieve established point levels. Eligible activities include double-sided printing/copying, using Greenleaf hotel accommodations, using public transportation, owning a fuel-efficient vehicle, home insulation, installing low-flow showerheads, growing organic vegetables and composting. There are currently 150 participants in the Pacific Region. The program could expand into other regions if its success continues.

"A wind power feasibility study is under way at National Defence's Connaught Range and Primary Training Centre in Ottawa."

The following table summarizes the linkages to programs and initiatives undertaken in P2 under the federal government's action plan on P2 within federal government operations.

Tracking Progress Against Pollution Prevention—A Federal Strategy for Action

Goal: Institutionalize P2 across all federal government activities

Actions	Status	Examples
1. Incorporate P2 into federal legislation.	Ongoing	• *Canadian Environmental Protection Act, 1999* • P2 planning provisions and related tools
2. Establish and implement green policies.	Ongoing	• Significant number of activities within Greening of Government Operations
3. Establish a Commissioner of the Environment and Sustainable Development to advance P2 in the federal government.	Complete	• Commissioner established following changes to the *Auditor General Act* in 1995
4. Integrate P2 into departmental policies and programs.	Ongoing	• P2 incorporated into sustainable development strategies • Guidelines and EAs

Progress with Other Governments

Federal pollution prevention strategy goal: Foster a national pollution prevention effort.

Provincial, Territorial and Municipal Partners

The Environmental Affairs Branch of Industry Canada assessed the feasibility of a municipal-based EMS using the ISO14001 standard. The one-year pilot initiative delivered several workshops to facilitate implementation of an EMS at the municipal government level and to improve understanding of the environmental impacts of municipal operations and plans, in order to mitigate such impacts. The workshops were held in Vancouver, Hamilton, Waterloo, Calgary, Banff and Halifax and included technical expertise, case studies, site tours, sample documents, practical exercises and post-seminar support. Participation in the initiative was voluntary. The workshops facilitated partnerships between industry and municipal governments and created opportunities for discussion and networking. The project engaged 47 federal, provincial and municipal governments, 20 industries and two academic institutions. **Update**

In 2002, the governments of Canada and Quebec, along with the Société de Transport de Montréal, Rothsay Laurenco, the Canadian Renewable Fuels Association and the Fédération des producteurs de cultures commerciales du Québec, launched the BIOBUS biodiesel demonstration and impact assessment project in Montreal. The project will gain practical experience in the use of biodiesel under real-life conditions, particularly in cold weather, and demonstrate the feasibility of supplying biodiesel to a mass transit company. In 2002–2003, the project operated 155 biodiesel buses. The project has resulted in a 1300-tonne reduction in carbon dioxide emissions for the 155 biodiesel buses using 5% or 20% biodiesel fuel. It will assess the economic impact of using this fuel, which is made from recycled sub-food-grade vegetable oil and animal fats. For more information, visit the Société de transport de Montréal website at http://www.stm.info/. **Update**

In 2002–2003, Environment Canada—Ontario Region, with the assistance of a federal–provincial–municipal steering committee, facilitated the development of mass multimedia communication tools on the reduction of residential pesticide use. Focus group sessions were held in Toronto and Montreal for the purpose of testing the key messages and acquiring feedback on the communication strategy. Efforts are now under way to provide Canadian municipalities with these communication tools. **New**

As part of the Personal Vehicle Initiative, Natural Resources Canada has created a web-based tool kit—The Idle-Free Zone—to assist municipalities and community groups in increasing levels of awareness and in taking action to curb unnecessary vehicle idling. The cities of Mississauga and Sudbury piloted an anti-idling campaign. The general public was the target in all of the pilots through a public-wide promotional campaign. Municipal employees were specifically targeted as a "house-in-order" initiative with awareness campaigns. The post-campaign survey revealed that 69% of the general public claimed to have seen, heard or read about the campaign, while the frequency of idling decreased from 54% to 29%. For more information, visit the Office of Energy Efficiency website at http://oee.nrcan.gc.ca. **New**

With technical and financial assistance from Environment Canada—Atlantic Region's Sustainable Communities Initiative and Eco-Action program, three communities in Cape Breton are working with partners to have the Bras d'Or Lakes designated as vessel "no-discharge" zones under the *Canada Shipping Act*. In a lead-up to this designation, stakeholders in these communities are developing strategies to prevent, reduce or control all land-based and vessel discharges to the water. The Pitu'paq Committee, a partnership of mayors, wardens and First Nations chiefs, is addressing three aspects of the sewage issue: central collection and treatment systems, faulty or non-existent on-site systems and recreational boating. **New**

A Green Business Network was launched in February 2003 within Nova Scotia as part of a larger Municipal Water Pollution Prevention Program. The Program's objective is to develop commercial, institutional and residential plans and actions to reduce the discharge of hazardous materials and pollutants to the municipal sewage system. The Green Business Network is a partnership of Nova Scotia Department of Environment and Labour, Environment Canada and the Lunenburg Board of Trade. Through the delivery of seminars/workshops, it promotes to SMEs the specific environmental and economic benefits of adopting a P2 approach. A luncheon seminar was held in February 2003, with three subsequent on-site P2 planning workshops. A final draft of a P2 workbook for Nova Scotia Business was developed for use in Lunenburg, as well as throughout Nova Scotia. **New**

"The Municipal Water Pollution Prevention Program's objective is to develop commercial, institutional and residential plans and actions to reduce the discharge of hazardous materials and pollutants to the municipal sewage system."

Community Energy Management is an integrated approach to examining the way in which energy is supplied and used in a community and is focused on the reduction of energy use through local initiatives. Environment Canada—Atlantic Region staff, together with other partners at the national and international level, are encouraging the adoption of new technologies and more informed decisions at the community level on issues such as solid waste management, transportation planning, landscaping and urban design, land use planning, and planning and design of other infrastructure (e.g., water and sewage treatment systems). A guidebook has been created to support the development of such energy plans and can be found on the Federation of Canadian Municipalities website at http://kn.fcm.ca/ev.php. **New**

With support from Environment Canada's Pollution Prevention Demonstration Fund, the St. John's Atlantic Coastal Action Program (ACAP) conducted a study in Donovan's Park to understand better the types and quantities of contaminants entering the sanitary sewage system. The project consisted of distributing a survey to businesses to better understand the types of contaminants they release and taking water samples within the sewer systems. The study results indicated that most businesses/industries require additional information in order to prevent or control the contaminants stemming from their operations. The study can also assist regulatory departments in developing sewer use by-laws to control the release of substances at source. **New**

2002 CCME Pollution Prevention Awards

The CCME gives national recognition to companies and organizations showing innovation or leadership in P2. The 2002 CCME Pollution Prevention Awards were presented to the following recipients:

- Aurum Experience Ltd. of Rocky Mountain House, Alberta, for building an ecotourism inn that is dedicated to providing quality accommodation with minimal adverse environmental effects.

- Informco, Inc. of Scarborough, Ontario, a graphic and lithographic printing company, for identifying P2 opportunities and improving practices in their printing process. The company adopted non-volatile organic compound-based additives in its printing process and thereby reduced volatile organic compound emissions to the environment by 4 tonnes per year.

- Novopharm Ltd. in Toronto, Ontario, for eliminating the use of dichloromethane in its pharmaceutical process operations. The company switched from a solvent-based to an aqueous-based process in its pharmaceutical tablet coating operations to achieve a reduction of 488.7 tonnes of dichloromethane emissions to air per year in 1997–2001, and it is expected to report 0 tonnes per year in 2002.

- The City of Toronto Works & Emergency Services Department, Water & Wastewater Services Division, Industrial Waste & Storm Water Quality Unit, for becoming the first municipality in Canada to incorporate P2 requirements into its Sewer-Based By-law. The by-law places strict limits on the quality and amount of industrial discharge to the municipal sewage system, specifically addressing 38 "subject pollutants" that are recognized as toxic, persistent and bioaccumulative substances.

- Labour Environmental Alliance Society of British Columbia, for designing the toxin elimination project Cleaners, Toxins and the Ecosystem, which eliminates the use of cleaning products containing toxic chemicals that are known carcinogens, endocrine disrupters and ozone-depleting substances.

- Mountain Equipment Co-op, for using sustainable building techniques and technologies in the design of its retail facility in Winnipeg, Manitoba. The company has accomplished P2 targets by constructing the building to conserve energy and reduce GHG emissions through heating and cooling, practising water conservation to reduce wastewater and eliminating solid waste production.

- Alberta-Pacific Industries Inc. of Boyle, Alberta, and their Carbon Central Team, for developing processes and programs to limit carbon dioxide emissions and allow its pulp mill to become carbon neutral by 2006.

For more details on the CCME awards, visit the CCME website at http://www.ccme.ca.

"The Georgia Basin Action Plan aims to protect and restore ecosystem health while developing sustainable communities and partnerships to provide economic opportunities and social well-being in this region of British Columbia."

Regional Initiatives

The five-year Georgia Basin Ecosystem Initiative—renamed the Georgia Basin Action Plan—will build on the progress made from 1998 to 2002, by protecting and restoring ecosystem health while developing sustainable communities and partnerships to provide economic opportunities and social well-being in the this region of British Columbia. The Georgia Basin Action Plan is committed to using scientific and indigenous knowledge to improve decision-making, applying sustainable land, aquatic and resource use planning and targeting ecosystems for protection and restoration. The goal is to provide healthy, productive and sustainable ecosystems and communities in the Georgia Basin. For more information, visit the Environment Canada website at http://www.pyr.ec.gc.ca/GeorgiaBasin/gbi_eIndex.htm. **Update**

Canada's National Programme of Action for the Protection of the Marine Environment from Land-based Activities (NPA) is led by Fisheries and Oceans Canada and Environment Canada. It has been prepared through the collaborative effort of the federal, provincial and territorial governments. The NPA complements integrated management in the coastal zone, coastal marine protected areas and P2. In 2002, the NPA Advisory Committee began the development of an NPA Action Plan to guide the implementation activities for the period 2002–2006. The NPA Atlantic Team identified seafood processing as one of several areas where immediate action could be taken with a P2 approach. There are over 600 processors in Atlantic Region. The first data collection phase has begun, where there has been a review of federal/ provincial regulatory requirements, as well as a compilation of available site-specific processing plant data. P2 opportunities include substitution of cleaning chemicals, process changes to reduce the pH or salinity of effluent or diverting a waste stream for value-added processing. For more information, visit the NPA website at http://www.npa-pan.ca. **Update**

The governments of Canada and Ontario have signed the Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem. The Agreement outlines how the two governments will cooperate and coordinate their efforts to restore, protect and conserve the Great Lakes basin ecosystem. The governments of Canada and Ontario have committed to work with producers and others responsible for sources of pollutants towards virtual elimination of persistent, bioaccumulative, toxic substances, such as polychlorinated biphenyls, and reductions of other harmful pollutants, using a substance- and/or sector-specific approach. They also plan to have a 90% reduction in the release of dioxins and furans and an 85% reduction in mercury releases by 2005, compared with releases in 1988. Other goals are to reduce pollutant discharges from municipal sewage treatment plants and combined sewer overflows and to reduce loadings of nutrients, pathogens and trace contaminants from urban stormwater. For more information, visit the Environment Canada website at http://www.on.ec.gc.ca/coa/. **Update**

Partnerships with Aboriginal Communities

The following are some examples of P2 initiatives with Aboriginal peoples.

The Atlantic Policy Congress of First Nations Chiefs, assisted by the Community Animation Program of Environment Canada–Atlantic Region, facilitated a workshop in September 2002 on closing the regulatory gap and improving the health and environmental conditions in Aboriginal communities. Workshop participants discussed topics such as water quality protection, indoor air quality, fuel storage tank maintenance and solid waste management. The workshop served to raise awareness of environmental issues on reserves and the need for both control and preventative actions.

Recommendations included: increasing environmental education on the reserve and providing training in environmental by-law development for Aboriginal communities. **New**

Environment Canada—Atlantic Region provided financial assistance for a report on inspections of residential oil tanks in six First Nations communities. Potential

"The Canada–Ontario Agreement Respecting the Great Lakes Basin Ecosystem outlines how these two governments will cooperate and coordinate their efforts to restore, protect and conserve the Great Lakes basin ecosystem."

spill hazards were assessed for 269 tanks. The survey identified maintenance issues and recommended replacement of 64 tanks. Indian and Northern Affairs Canada is responsible for implementing the recommendations and, as of March 2003, has replaced 56 of the tanks. Results and recommendations were presented to council in each community. New

Environment Canada—Atlantic Region continues to work with First Nations and Parks Canada to develop spill contingency and P2 plans. Most of the national parks in Atlantic Region have received training, the most recent being Cape Breton Highlands National Park, where 20 staff received training. Work has been under way with First Nations facilities in Cape Breton. The plans have been very effective in reducing the number of spills and controlling the impact of spills that do occur. New

The following table summarizes the linkages to programs and initiatives undertaken in P2 under the federal government's action plan on P2 with other orders of government in Canada.

Tracking Progress Against Pollution Prevention—A Federal Strategy for Action

Goal: Foster a national P2 effort.

Actions	Status	Examples
Review legislation, regulations and policy for opportunities to harmonize approaches to P2.	Ongoing	• CCME Canada-wide Standards • Canada–Ontario Agreement
Develop practical tools, such as guidelines and codes of practice, to enable people to implement P2 at an operational level.	Ongoing	• Municipal EMS pilot • Municipal Wastewater Effluent Risk Management Strategy • The Idle-Free Zone tool kit
Educate the public about P2 and train relevant groups in the technical aspects of P2.	Complete	• CCME Pollution Prevention Awards

Progress with the Private Sector

Federal pollution prevention strategy goal: Achieve a climate in which pollution prevention becomes a major consideration in private sector activities.

Industrial Pollution Prevention

Responding to suggestions put forward by the New Directions Group[1] and recommendations of the Commissioner for Environment and Sustainable Development, Environment Canada, in consultation with interested Canadian stakeholders, developed a "Policy Framework for Environmental Performance Agreements." The Minister of Environment issued the policy framework in June 2001. Environmental performance agreements (EPAs) are voluntary agreements negotiated among industry, government agencies and non-government organizations to achieve specified results. Environment Canada is guided by the following principles in negotiating EPAs:

- *Effectiveness:* EPAs must achieve measurable environmental results.
- *Credibility:* The public must have confidence in the approach and in the parties' capacity to deliver on their commitments.
- *Transparency and accountability:* All parties to an agreement must be publicly accountable for the commitments they make and for the performance against the commitments.
- *Efficiency:* EPAs should be no more expensive to the parties for equivalent environmental results.

Similarly, EPAs are negotiated around the following core design criteria:

- senior commitment from participants;
- clear environmental objectives and measurable results;
- clearly defined roles and responsibilities;
- provision for consultation;
- public reporting;
- verification of results;
- incentives and consequences; and
- continual improvement.

To date, Environment Canada has signed four EPAs and is in the process of negotiating a fifth. These agreements and their key objectives and commitments are outlined below.

The Automotive Parts Manufacturers' Association negotiated a five-year EPA with Environment Canada and Industry Canada. The agreement, which was signed in October 2002, builds P2 performance targets into facility ISO14001 EMSs. Targets for the association include a 20% reduction in VOC emissions by 2007 and a 3% reduction in carbon dioxide emissions by 2007, both from a 2000 base year, and individual facility P2 initiatives for targeted toxic substances. Facilities will be registered with ISO14001 by December 2003. For more information, visit the Automotive Parts Manufacturers' Association website at http://www.apma.ca. **Update**

In September 2001, Environment Canada and Canadian companies manufacturing and processing refractory ceramic fibres signed an EPA based on commitments made in the Strategic Options Report for this sector. This EPA will assist in gathering actual emission data to determine if additional control measures are needed and to confirm the commitment of industry to establish and maintain a product stewardship program. **Update**

In October 2001, Environment Canada signed an EPA with two Dow Chemical facilities (Fort Saskatchewan, Alberta, and North Vancouver, British Columbia) to reduce releases of 1,2-dichloroethane. The agreement acknowledges Dow's proactive approach to environmental management and requires the preparation of an Environmental Management Plan, including goals, target dates and timelines for emission reduction of 1,2-dichloroethane. **Update**

[1] *The New Directions Group, made up of corporate executives and leading environmentalists, came together in November 1990. Their objective was to seek opportunities to improve how organizations make decisions on the environment.*

Environment Canada renewed the Memorandum of Understanding with the Canadian Chemical Producers' Association, which had expired in 1998. This five-year agreement was signed in April 2001. Although this EPA was signed prior to the release of the EPA Policy Framework in June 2001, it meets the principles and criteria outlined in the framework. The objective of the agreement is to reduce releases of chemical substances through the Canadian Chemical Producers' Association's Responsible Care® program. Annexes with more specific reduction targets will be added to this EPA over time. Currently, there is an annex dealing with reductions in VOC releases. The VOC Annex commits member companies to reduce releases of VOC emissions by 25% below 1997 levels by 2002. **Update**

Environment Canada—Ontario Region, the Screen-printing and Graphic Imaging Association and the screen-printing sector in Ontario are negotiating a five-year EPA. The agreement will commit the Screen-printing and Graphic Imaging Association to providing EMS training to 50 screen-printing facilities in Ontario by December 2008 in order to reduce the use of VOCs by at least 20%, based on the amount of VOCs used during 2000, and to reduce the use of other substances of concern, hazardous waste, energy consumption and water usage. **New**

For more information on any of these EPAs, please visit the website at http://www.ec.gc.ca/epa-epe.

The Canadian Industry Program for Energy Conservation (CIPEC) represents more than 5 000 companies and reports on approximately 95% of total industrial energy demand through 25 task forces. CIPEC's aggregate target is a 1% overall improvement in industrial energy intensity per year through to 2005. For the period 1990–2001, mining, manufacturing and construction subsectors achieved an average annual energy intensity improvement of 1.8% and reduced their GHG emissions related to energy use to 8.4% below 1990 levels. Total fuel savings for 2001 amounted to $2.8 billion. Building on CIPEC, Natural Resources Canada is working with industry through the Industrial Energy Innovators Initiative to explore energy efficiency options and strategies. For more information, visit the CIPEC website at http://oee.nrcan.gc.ca/cipec/ieep/cipec/index.cfm. **Update**

The Energy Innovators Initiative encourages commercial businesses and public institutions to become more energy efficient and reduce their GHG emissions, which contribute to climate change. Over 1 000 organizations representing more than 27% of commercial and institutional sector floor space have been recruited as innovators. In 2002–2003, the Energy Innovators Initiative provided financial incentives to 59 retrofit projects for a total expected energy savings of about 1.8 million gigajoules or GHG emission reduction of 0.155 megatonnes. These projects are expected to save over $20 million in energy bills annually. **Update**

Industry Canada participated as a member of the Government Advisory Panel to the Vinyl Council of Canada Environmental Management Program. The program incorporates a number of management practices and performance measures, which make it an ideal stepping-stone to initiating an ISO14001 registration. Consisting of six guiding principles, five commitment areas and a series of practical action steps, the Environmental Management Program is designed with P2 as its overall objective. The Vinyl Council of Canada issued its third annual report of the Environmental Management Program in December 2002. The Canadian Plastics Industry Association is now in the process of adopting a similar program that would be applicable across the plastics industry. For more information, visit the Vinyl Council of Canada website at http://www.plastics.ca/vinyl. **Update**

Sector-Specific Initiatives

Agriculture and Food

With partial financial assistance from Environment Canada—Ontario Region, commercial-scale testing of fish cage manure collectors was undertaken and completed in 2002. The results demonstrate a reduction in discharges of phosphorus and solid waste. Other P2 efforts include the testing of low-pollution feed formulations for farmed rainbow trout. Laboratory feeding trials indicate that the new feed formulations will result in a decrease in nutrient input into lakes and streams compared with traditional rainbow trout feeds. Problems with commercial-scale production of the new formulations, largely due to old feed manufacturing equipment at the feed company, is delaying commercial availability of the new formulations. The feed research has been carried out by the collaborative efforts of Martin Mills Inc., Aquacage Fisheries and the University of Guelph, with support from provincial and federal government departments and agencies, including Environment Canada and Fisheries and Oceans Canada. **Update**

With financial and technical support from Environment Canada, a pilot project was conducted for a second year in Prince Edward Island's Bedeque Bay, to determine whether daily, specific spray advisories to farmers would influence pesticide spraying decisions. Seventeen farmers received, by fax or e-mail each morning throughout the growing season, a weather forecast of conditions for three-hour intervals throughout the day. As well, they received a corresponding spraying advisory, with a category of high, medium and low, indicating the probability of either spray drift or rain-induced runoff. An end-of-the-season survey after the second year revealed that 24% of farmers changed their practices based on the information, resulting in a reduced potential for drift and runoff. Post-project evaluation indicated that additional modelling and marketing efforts should be included in future advancements of this project. **Update**

"24% of farmers in Prince Edward Island's Bedeque Bay changed their pesticide spraying practices based on the daily weather reports and spray advisories provided throughout the pilot project, resulting in a reduced potential for drift and runoff."

Environment Canada—Ontario Region developed, on behalf of the Agricultural Adaptation Council, a three-year liquid manure composting technology demonstration project at a 3 000-weaner pig farm. The objective was to demonstrate the merits of the composting system in reducing odours and preventing the contamination of surface water and groundwater and to effectively achieve GHG emission reductions through new technology transfer. Technology verification used the protocols of the Environmental Technology Verification Canada program. Final results confirmed a minimum reduction of 64% in GHG emissions compared with traditional manure management practices. For the participating farm, the annual reduction was 350 tonnes of carbon dioxide equivalent. **New**

As part of its ongoing effort to reduce the number and amount of manure spills and runoff, Environment Canada—Ontario Region continues to monitor spills and raise awareness about the water quality concerns related to manure/nutrient management on farms. In 2003, the department again conducted watershed-based farm visits in priority areas across the province. This year, farmers in subwatersheds of the Niagara River and St. Lawrence River Areas of Concern were visited by compliance promotion staff. Staff distributed brochures on reducing nutrient loading to fish habitat, including an updated version of Manure, Farming and Healthy Fish Habitat, Issue 1. In addition to distributing water quality information, staff also surveyed farmers to characterize the agricultural watersheds and develop the most appropriate solutions to the water quality problems generated by livestock farms. **New**

In 2003, a multistakeholder workshop on fish plant effluents and sustainability issues was held in New Brunswick. The workshop was hosted by Fisheries and Oceans Canada, in partnership with Environment Canada, New Brunswick Department of Environment and Local Government and New Brunswick Department of Agriculture, Fisheries and Aquaculture, and was attended by over 100 participants. The topics covered included in-plant waste minimization, effluent technologies, opportunities for by-product recovery and nutrient issues, as well as an understanding of the receiving environments where effluents are released. The outcome of the workshop underscored the need for a better understanding of the problems the industry presents, the opportunities for in-plant improvements, treatment technology adaptation and refinement and P2 opportunities. **New**

Automotive

Now in its 10th year, the Canadian Automotive Vehicle Manufacturing Pollution Prevention Project has a goal of producing verifiable reductions of persistent toxic substances as well as other contaminants used, generated or released in automotive manufacturing facilities. The project is an industry—government cooperative partnership involving the Canadian Vehicle Manufacturers' Association (including DaimlerChrysler, Ford and General Motors), Environment Canada and the Ontario Ministry of the Environment. A combination of techniques has reduced and/or eliminated at the source more than 404 000 tonnes of toxic chemicals and other substances of concern during the life of this project. Negotiations continued with Environment Canada and the Ontario Ministry of the Environment for a new voluntary agreement that will build P2 targets into the ISO14001 EMS platform. For more information, visit the Canadian Vehicle Manufacturers' Association website at http://www.cvma.ca/Programs/Pollution.html. **Update**

The Collision Industry Action Group has developed a national Internet-based training program for autobody repair shops. The Project STAR environmental training course, "Profit from Good Environmental Management," is accessible to approximately 2 800 facilities in Ontario. The training program focuses on the benefits of reducing wastes, particularly VOCs, from autobody facilities, by going beyond compliance. The project is an industry—government cooperative partnership involving Environment Canada, the Ontario Ministry of the Environment, the Collision Industry Action Group, the Canadian Automotive Institute and

members of the Canadian Paint Coatings Association. For more information, visit the Collision Industry Action Group website at http://www.ciia.com. **Update**

Under Natural Resources Canada's EnerGuide for Vehicles initiative, vehicle manufacturers voluntarily attach an EnerGuide label to new vehicles sold in Canada. The label helps consumers select the most fuel-efficient vehicle for their needs by giving the vehicle's fuel consumption rating and estimated annual fuel costs. In 2002, Natural Resources Canada distributed 430 000 copies of the Fuel Consumption Guide to vehicle dealerships and recruited one new vehicle manufacturer (Mitsubishi) to the initiative. For more information, visit the EnerGuide for Vehicles website at http://www.oee.nrcan.gc.ca/vehicles. **Update**

The Natural Gas for Vehicles Initiative provides a financial incentive for the purchase of vehicles capable of operating on natural gas. Over 1 600 vehicles have been funded since 1999. The terms and conditions of the Program expire March 31, 2004 and Natural Resources Canada is currently working on realigning the program based on consultations with industry stakeholders and on a market assessment.

The Switch Out program is Canada's first program to address mercury use in vehicles and the release of mercury when vehicles are recycled at their life's end. Building on the initial success of Pollution Probe's pilot project, the Switch Out program has almost 200 automobile recyclers participating voluntarily in six Canadian provinces. In 2003, the Clean Air Foundation hopes to collect 75 000 mercury switches nationally and expand the program to two more provinces. With the support of Environment Canada, all mercury collected through the Switch Out program is recycled into products with end-of-life take-back programs, thus preventing re-emission of mercury to the environment through poor disposal practices. The Clean Air Foundation is encouraging the development of permanent disposal options for mercury in order to completely remove mercury from commerce. For more information, visit the Clean Air Foundation website at http://www.switchout.ca/. **Update**

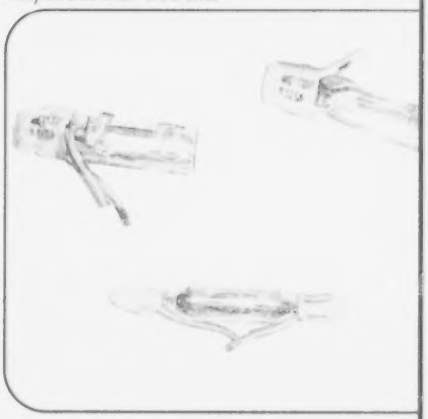
Building Design

A Green Building Network has been established by Public Works and Government Services Canada. This network consists of a partnership between the British Columbia Building Corporation, the Greater Vancouver Regional District, Environment Canada and other federal, provincial and municipal organizations. The network advocates environmentally responsible and healthy buildings, sharing knowledge and expertise in green building/sustainable construction and raising environmental awareness. Members of the network have the opportunity to participate in lunchtime presentations, tours, training and workshops on Green Building projects, technologies, products and building assessment tools. **New**

Industry Canada has undertaken a multidisciplinary initiative in partnership with Greater Vancouver Regional District and the private sector to design and develop a working prototype of a sustainable building, affordable within current market constraints. One objective of the prototype design is the reduction of the pollutants normally associated with building construction and operation. During 2002–2003, work began on the adaptation of the design to the requirements of housing for the 2010 winter Olympics. **Update**

Industry Canada, through the Intelligent Buildings Technology Roadmap, is helping to overcome some of the challenges associated with implementing intelligent building technologies. These technologies, if adopted, would lead to improvements in energy efficiency and indoor air quality.

"The Switch Out program is Canada's first program to address mercury use in vehicles and the release of mercury when vehicles are recycled at their life's end."



The Intelligent Buildings Council was created to address the challenges facing the adoption of this technology, along with five task force teams with members from industry and government organizations. With additional funding from Public Works and Government Services Canada, a Best Practices Guide was developed in 2002, and planning for a 2003 Summit is under way. **Update**

Western Economic Diversification Canada is supporting the Geothermal Subdivision project in Wawanesa—Manitoba's first housing subdivision using Ground Source Heat Pumps for heating and cooling. The net GHG emission reductions from this single 13-home subdivision will be 52 tonnes each year. Energy savings for each house will be approximately $1 000 per year. Also in 2002–2003, the Rural Municipality of McCraney's in Saskatchewan received the support of Western Economic Diversification Canada to implement geothermal heat in one of its municipal buildings. **New**

Chemical

The PCI Chemicals Canada Company plant in New Brunswick produces chlorine, caustic soda, sodium chlorate and hydrochloric acid. These chemicals are used in many industrial applications, including pulp and paper, plastic production and food processing. In 2001, at the company's request, the Atlantic Canada Opportunities

Helpful Environmental Business Information

To view the P2 capabilities of Canada's best technology and service firms, visit the Canadian Environmental Solutions website at http://strategis.ic.gc.ca/ces. Developed by Industry Canada, Canadian Environmental Solutions addresses environmental problems related to water, air, soil, energy, climate change and research and development. It is a direct link to solutions and the Canadian companies supplying them. Canadian Environmental Solutions works because it is extensive—it describes 2 000 environmental problems and solutions, along with more than 900 solution-providing companies.

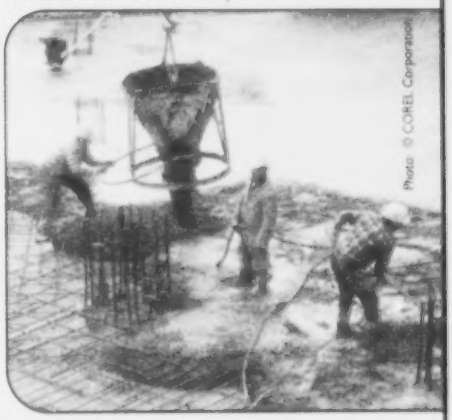
Agency provided assistance in undertaking a P2 evaluation. A study was conducted on the efficiency of the plant's operations, and improvements were recommended in energy efficiency, operation controls, solid waste reduction and effluent reduction and elimination. The PCI has implemented a number of recommendations, including improved energy usage, reducing the risk of a potential chlorine release to the environment, reducing inadvertent mercury vapour releases and reducing water consumption and effluent water releases to the environment. **New**

Construction

Natural Resources Canada's International Centre for the Sustainable Development of Cement and Concrete promotes the use of EcoSmart™ concrete. This concrete has the potential to substantially reduce emissions of carbon dioxide by substituting fly ash and other materials for the Portland cement traditionally used in concrete. Fly ash is a by-product of coal-burning power plants and is normally destined for landfill. Replacing 1 tonne of cement with 1 tonne of fly ash offsets industrial carbon dioxide emissions by approximately 1 tonne, in addition to providing a use for an industrial by-product. The EcoSmart project has contributed directly to overall fly ash replacement levels in concrete in the Vancouver area, increasing from 15% to 25% over the past three years. The success of this technology has led the department to partner with the Canadian International Development Agency (CIDA) for purposes of transferring the technology to developing countries. Through the Canada Climate Change Development Fund (managed by CIDA), a project is under way in India between the International Centre for the Sustainable Development of Cement and Concrete and the Confederation of Indian Industry. The project aims to build the capacity of key Indian stakeholders to effectively employ this technology across India. For more information on the technology, visit the EcoSmart™ concrete website at http://www.ecosmart.ca. **Update**

Natural Resources Canada's Commercial Buildings Incentive Program provides financial incentives to building owners who construct buildings that are at least 25% more energy efficient than similar buildings constructed to the Model National Energy Code for Buildings. In 2001–2002, 79 new buildings received support. Since the program started, 255 new buildings have received support, resulting in an annual reduction of 50 kilotonnes of carbon dioxide emissions. On average, Commercial Buildings Incentive Program buildings are 34.4% more energy efficient than similar buildings built to the current energy code. Similarly, Natural Resources Canada manages the R-2000 Standard, which encourages the building of energy-efficient houses that exceed by 30% the efficiency

"EcoSmart concrete has the potential to substantially reduce emissions of carbon dioxide by substituting fly ash and other materials for the Portland cement traditionally used in concrete."



level required by current Canadian building codes. In 2002–2003, Natural Resources Canada trained one new tract builder* and updated 80% of previously trained builders, along with training eight new builders. In 2002, 421 homes were built to the R-2000 Standard. As of November 2003, 284 homes have been certified. For more information, visit the Office of Energy Efficiency website at http://oee.nrcan.gc.ca. **Update**

New Brunswick highway engineers, with the support of Transport Canada, Environment Canada and other government partners, are designing options to minimize the disturbance of acid-producing rock. Four sites with a total of one million tonnes of potentially disturbed bedrock have been addressed. Through design modifications, the bedrock amount disturbed was reduced by approximately 50%, one-half with appropriate mitigation for the residual disturbed material. Similarly, in Nova Scotia, industrial and commercial development often disturbs bedrock, which in specific geologies may create acidic leachate deleterious to receiving waters. A recent study on disposal of this material in marine waters indicates that the acidification process is quite dormant, and no evident effects have been identified

*A tract builder is generally identified as a builder that builds 100 or more homes a year.

after 10 years and disposal of several million tonnes. This disposal activity eliminates the need for chemical usage associated with leachate treatment and costly on-land treatment/disposal requirements of a material normally considered deleterious when disturbed. This combination P2/pollution control effort has significantly reduced the environmental impact of development on acid-sensitive lands in Nova Scotia. **New**

Dry Cleaning

Environment Canada's Wet Clean Demonstration Project utilizes new technology to reduce the use of detergents in wet cleaning. Traditional wet cleaning serves as a replacement for dry cleaning, which uses toxic tetrachloroethylene. Yet, traditional wet cleaning produces a different type of pollution problem—detergents that are sources of phenols and biological oxygen demand. The demonstration project carried out at Our Cleaners in Barrie, Ontario, realized a 6% reduction in energy use over the last year while increasing the volume of clothing cleaned by 7%. Detergent consumption has decreased a further 15%. **Update**

The Canadian Centre for Pollution Prevention undertook a survey of practices in the Ontario dry cleaning industry with the support of Environment Canada—Ontario Region. A primary goal of the survey was to establish the extent of green cleaning among Ontario dry cleaners and progress made since the end of the Green Clean Project. The survey established that many Ontario dry cleaners are taking small measures, such as improving operating practices, modernizing equipment, changing dry cleaning solvents or initiating recycling programs with the intent of protecting the environment of the communities in which they operate. Also, a Green Dry Cleaning website was developed containing an online directory of Ontario dry cleaners that provide green cleaning options for their customers. For more information, visit the Green Dry Cleaning website at http://www.c2p2online.com/greendrycleaner. **New**

Forestry and Wood Products

Through funding from Natural Resources Canada, the Forest Engineering Research Institute of Canada has created the Star Truck Project to improve the fuel efficiency of forest product transportation trucks. Project results show a net reduction in truck weight of up to 3.2 tonnes. The lower tare weight and other savings achieved by the Star Truck Project reduce the haul costs by $1 per tonne. In the case of Tembec's Nouvelle plant's overall operations, which are considered mid-size (hauling 312 000 tonnes per year), the annual savings would be about $312 000. The Forest Engineering Research Institute of Canada also studied the potential for multiuse trailers for carrying various types of products. The structure of the forest industry in Canada is such that there is a requirement for different types of trucks to go from one mill to another, with trucks wasting significant amounts of fuel running without loads. Multiuse trailers would minimize this problem and could save up to 12 000 litres of fuel per year. For more information, visit the Natural Resources Canada website at http://oee.nrcan.gc.ca/fleetsmart/caseStudies/caseStudies_forestry.cfm?PrintView=N&Text=N. **New**

Natural Resources Canada's Canadian Forest Service is supporting a variety of programs across Canada aimed at reducing pesticide use, including mechanical avenues (e.g., integrated application technology, minimizing off-target deposit when treating priority stands), the development of physical

"The lower tare weight and other savings achieved by the Star Truck Project reduce the haul costs for forest products by $1 per tonne."

alternatives to chemical pesticides (e.g., a spruce budworm pheromone product for use in early-intervention strategies) and the development of biological control tools (e.g., an integrated program for control of sawfly forest pests to determine the impact of naturally occurring microbial pathogens [fungi, bacteria and viruses] as possible control agents, the use of mushroom entomopathogens against forest defoliators and agents for use against the gypsy moth). For more information on such activities, visit the Canadian Forest Service website at http://www.nrcan-rncan.gc.ca/cfs-scf/index_e.html.

With increased emphasis on the development of natural and biological materials as alternatives to chemical pesticides, Natural Resources Canada's Aquatic Ecology and Ecotoxicology Study is examining the effects of these alternatives on aquatic organisms and ecosystems, the effects of genetically engineered insect viruses in aquatic systems and the effects of alternatives to forest clear-cutting on habitat and biota of headwater streams, in order to ensure that the alternative practices are in fact providing significant environmental protection. For more information on the

Star trucks are specifically designed for the task they will be working on. Therefore, there is not one star truck but as many star trucks as there are hauling conditions.

study, visit Natural Resources Canada's Aquatic Ecotoxicology website at http://www.glfc.cfs.nrcan.gc.ca/science/research/aquaticecoto_e.html#top. **New**

Significantly, Natural Resources Canada also supports the development of a decision support system for pest and forest management planning, integrating scientific research results, resource management information, computer models and government information system technology, thereby reducing pesticide use and optimizing forest protection/production. Training programs on integrated pest management techniques are available to field technicians and practitioners. **New**

Environment Canada—Prairie and Northern Region is the national lead on the wood preservation strategic options process. One of the actions under the process is to have all 66 wood preservation facilities across Canada adopt a standard operating guideline. The guideline describes in detail P2 activities that minimize releases of treatment chemicals containing CEPA-toxic substances, including training on spill prevention. A voluntary implementation program was initiated in 2000, and most facilities in Canada have made significant progress towards compliance with the guideline. The goal of the program is to have all facilities compliant by 2005. Environment Canada—Prairie and Northern Region is working with the Canadian Institute of Treated Wood on the implementation program. **New**

Environment Canada—Quebec Region, along with industry and government stakeholders, supported the establishment of the first wood treatment plant in North America that uses heat instead of chemicals. The high-temperature heat treatment sterilizes the wood, destroying any parasites that may be present. This technology will provide the treated wood industry with an alternative to wood treated with chromated copper arsenate, creosote and pentachlorophenol, enabling it to comply with increasingly stringent environmental requirements. **New**

Health Care

The Healthcare EnviroNet website was established with support from Environment Canada—Ontario Region and is developed and maintained by the Canadian Centre for Pollution Prevention in consultation and partnership with health care and non-government organizations. The website shows health care staff how to take action to reduce their facilities' environmental impact in areas such as green procurement, sustainable building design and P2 planning. For more information, visit the Healthcare EnviroNet website at http://www.c2p2online.com/healthcare.

In keeping with CCME's goal of cost-effective actions to minimize releases of mercury and its compounds, a Canada-wide Standard for reducing environmental releases of dental amalgam has been developed. The removal of old fillings and the shaping/polishing of new fillings generate a mercury-containing waste when amalgam particles are vacuumed from the mouth and discharged to sewage systems. The Canada-wide Standard seeks to significantly improve the capture of amalgam wastes through best management practices. Best management practices include the use of an ISO-certified amalgam trap, or equivalent, and appropriate management of waste so mercury does not enter the environment. The standard is intended to achieve a 95% national reduction in mercury releases from dental amalgam waste discharges to the environment by 2005, from a base year of 2000. For more information, visit Environment Canada's Mercury and the Environment website at http://www.ec.gc.ca/mercury. **Update**

In 2002–2003, Health Canada's First Nations and Inuit Health Branch funded the replacement of mercury-containing equipment such as thermometers and blood pressure machines with non-mercury alternatives. The Branch also hired a consultant to perform environmental audits at the following Health Canada hospital facilities: Weeneebayko General Hospital, Percy E. Moore Hospital and Norway House Hospital. **New**

"The Canada-wide Standard for reducing environmental releases of dental amalgam is intended to achieve a 95% national reduction in mercury releases from dental amalgam waste discharges to the environment by 2005, from a base year of 2000."

Information Technology

Environment Canada, Natural Resources Canada, Industry Canada, provincial and territorial environment ministries and other stakeholders are jointly working together to assist the Information Technology Association of Canada and Electro-Federation Canada with the development of a National Extended Producer Responsibility program for collection and recycling of obsolete consumer electronic products (specifically, personal computers, laptops, printers and televisions). A not-for-profit industry stewardship organization, Electronics Product Stewardship, was established to address the end-of-life management of information technology and consumer electronics products in Canada. This initiative aims to reduce the quantity of toxic substances (such as mercury, lead and cadmium) that are frequently released into the environment from obsolete electronic consumer products. Electronics Product Stewardship released its business

"The CleanMarine Eco-Rating Certification Project aims to certify 150 marinas in Ontario and rate them based on their environmental performance."

plan in the summer of 2003. The plan incorporates feedback and input from multistakeholder consultations. Other key partners engaged in this project include the National Research Council and Health Canada. **Update**

Marinas/Harbours/Shipyards

The CleanMarine Eco-Rating Certification Project is a three-year agreement between the Ontario Marine Operators Association, the Ontario Ministry of the Environment and Environment Canada to certify 150 marinas in Ontario and rate them based on their environmental performance. Participants are provided with a CleanMarine Best Management Practices Handbook. Marinas are audited for their performance and awarded an achievement rating. Marinas participating in the program must be committed to continuously improving their environmental practices and performance each year. Certified marinas are identified and listed in the Ontario Marina Directory. The certification program was developed with input from various steering committee members from the CleanMarine Partnership, which includes representatives from the boating industry, associations, media and government agencies and TerraChoice Environmental Services Inc. To date, 100 Ontario marinas have been audited for their environmental best management practices, and an additional 50 marinas will be audited in 2003. For more information, visit the Ontario Marine Operators Association website at http://www.omoa.com. **Update**

Fisheries and Oceans Canada established and implemented environmental management plans for 581 of 664 client-managed small-craft harbours. An environmental management plan's purpose is to identify all harbour activities and operations that might have potentially negative impacts on the environment and outline a plan to manage the operations and activities in such a way as to reduce these impacts. As a spill prevention measure, waste oil is being collected and recycled at 27 client-managed harbours. For more information, visit Fisheries and Oceans Canada's Small Craft Harbours website at http://www.dfo-mpo.gc.ca/sch/home-accueil_e.html. **Update**

Metal Finishing

The Metal Finishing Industry Project is a partnership between Environment Canada and the Ontario Ministry of the Environment, the Canadian Association of Metal Finishers and related industry associations that began in 1993. The project's goals are to develop tools for formulating P2 plans for reduction of toxic substances, promote development and implementation of site-specific P2 plans, demonstrate the benefits associated with P2 planning and publish the progress of substance use reductions under the plans. The task force released its Ninth Progress Report in January 2003. There are 27 metal finishing companies participating in the project, with 58 documented case studies. In addition, the task force has developed a Metal Finishing P2 Technologies Manual, which provides brief descriptions of P2 technologies available to the industry. For a copy of the report or manual, visit the Canadian Association of Metal Finishers website at http://www.camf-acfm.com. **Update**

Mining

Natural Resources Canada co-leads a North American consortium aimed at bringing hydrogen fuel cells to underground mining operations. One of the major benefits of this technology for underground mining is pollution-free exhaust, contributing to improved worker health and safety and the elimination of GHG emissions. The long-term target for this work is the retrofitting of underground mining vehicle fleets, currently powered by diesel fuel, with hydrogen fuel cell technology. The department is currently working on establishing hydrogen production and delivery protocols. It is estimated that by 2007, fuel cell vehicles will be designed and manufactured. The minimum quantity of carbon dioxide emission reduction for replacing all underground diesel vehicles (approximately 3 200 units) in metal mines alone is 1.0 million tonnes. While this reduction is relatively small, it represents approximately 26% of all emission produced by the underground and open pit primary extraction sector in Canada, which is 3.6 million tonnes. With this change alone, the Canadian extraction sector would meet its Kyoto targets. **Update**

Natural Resources Canada is also heading a project to develop a narrow-vein mining system that would mine only the veins and leave surrounding rock in place using thermal fragmentation technology. This system will substantially reduce the use of chemical explosives and the transport of ore. It can be used in open pit and underground mining. In 2002–2003, the department evaluated the performance of the technology on the surface and actively participated in organizing underground testing for 2003–2004. Efforts are also under way to develop a small hybrid diesel-electric scooptram for narrow-vein mines. One of the major benefits of this technology is the significant reduction in emissions from underground mining vehicles by using a smaller, continuously operating diesel engine combined with a high-performance filter, thereby improving worker health

while significantly reducing GHG emissions. Eventually, the small diesel engine could be replaced by a fuel cell. **Update**

Another technology under development reduces energy consumption associated with mine ventilation. Electricity for ventilation represents approximately 40% of the electrical energy required for underground mine production. Ventilation on demand identifies when air is required, where it is required and at what level. One study with a specific industrial client has shown that the air delivery of the primary ventilation system could be reduced 30–40% of the time, and operation of the secondary distribution system could be reduced 60–70% of the time. **Update**

CANMET Mining and Mineral Sciences Laboratories of Natural Resources Canada coordinates a government-industry Thiosalts Consortium aimed at developing innovative technology for the prevention, treatment and monitoring of thiosalts. Thiosalts are produced during the processing of sulphur-rich ores, and they are discharged from the mill as dissolved compounds in the process water. The degradation of thiosalts within the surface waterways could potentially cause increased acidity in the receiving aquatic environment, which may affect fish.

"During 2002, the CANMET Materials Technology Laboratory successfully completed full-scale stress and corrosion cracking testing of line pipe."

Examples of techniques used to prevent thiosalts from generating acidity include bacterial oxidation of thiosalts and oxidation using hydrogen peroxide. Research has helped to increase understanding of technical issues associated with the natural degradation and analysis of thiosalts. The mining industry is using the results from our studies to comply with permit discharge regulations for the effluent at mine sites. **Update**

Natural Resources Canada's Mine Environment Neutral Drainage Initiative continues to contribute to the understanding and prevention of acidic drainage and metal leaching under neutral or alkaline conditions. In 2003, several projects are under way in the areas of closure management, technology verification, neutral metal leaching and sludge management. Environment Canada, several provincial governments and the Mining Association of Canada, along with a number of mining companies and non-government organizations, have participated in this initiative. For more information, visit the Mine Environment Neutral Drainage website at http://www.nrcan.gc.ca/mms/canmet-mtb/mmsl-lmsm/mend/. **Update**

Oil and Gas

Natural Resources Canada, through the CANMET Materials Technology Laboratory, researches the management of oil and gas pipeline corrosion. This work helps industry reduce the incidence of oil and gas leaks. During 2002, the laboratory successfully completed full-scale stress and corrosion cracking testing of line pipe. This research is in high demand for pipeline systems design in environmentally sensitive northern regions. **Update**

For 10 years, Environment Canada—Atlantic Region, along with Transport Canada and the Canadian Coast Guard, have provided P2 information to oil tankers stopping in Newfoundland ports. Information is provided by personnel hired by Environment Canada, who visit the ships and provide information to the most appropriate officer. In 2003, this program was expanded to oil tankers visiting Nova Scotia ports. **New**

Printing and Graphics

CleanPrint Canada is a P2 project that works with printing and graphics firms, associations and other governments to reduce and/or eliminate the use, generation and release of toxic substances and other substances of concern. Environment Canada is a leader and funding participant in various regional organizations within CleanPrint Canada. For instance, this past year, CleanPrint British Columbia saw an additional four facilities complete the environmental management plan process, with an estimated annual reduction and savings of up to 99% in the use of isopropyl alcohol for some operations, more than 1 000 litres of reduced solvent use overall, up to 10% reduction in the use of ink at one operation, an overall solid waste reduction of more than 800 cubic metres and close to $200 000 in savings and earnings as a result of reduction and recycling activities. Long-term project goals include reduction of VOC emissions from printing in the Lower Fraser Valley to 20% of 1985 levels by 2005; reduction of silver and VOC discharges to the Capital Regional District sewer system by 50%; and contribution to a 50% reduction in municipal solid waste in British Columbia. For more information, visit the CleanPrint Canada website at http://www.cleanprint.org. **Update**

The Government of Canada's printing needs are serviced entirely by the Office of Information Products and Services. In 2002–2003, the lithographic printing services were certified by the Environmental Choice Program, conforming with the environmental performance standards established by the Government of Canada under Canada's National Guidelines on Lithographic Printing Services. These standards are

intended to ensure the environmental integrity of printing processes through reductions in toxic emissions, reductions in wastewater loadings, reductions in the quantity of materials sent to landfills and the implementation of resource conservation procedures. The paper used inside these documents conforms to Canada's National Printing and Writing Paper Guideline and/or Uncoated Mechanical Printing Paper Guideline. These guidelines set environmental performance standards for fibre use efficiency, chemical oxygen demand, energy use, global warming potential, acidification potential and solid waste. **Update**

"In Ontario, over 200 campgrounds have participated in Camp Green, Canada!℠ by promoting the benefits of using non-toxic holding tank products."

Tourism

Camp Green, Canada!℠ encourages recreational vehicle owners and boaters to use non-toxic products instead of formaldehyde-based products in their sewage holding tanks. Nova Scotia was the first province in Canada to embrace unified promotion of biological treatment alternatives. In 2001, the Camp Green, Canada! ℠ campaign was launched for public and private campgrounds across the country. The program is now established in the Atlantic, Quebec, Ontario and B.C. regions, with other regions showing interest. Environment Canada, along with Parks Canada, the Ontario Private Campground Owners Association, the Tourism and Industry Association of Nova Scotia, Campground Camping Canada and KOA Campgrounds, continues to support and promote the program. In Ontario, over 200 campgrounds have participated by promoting the benefits of using non-toxic holding tank products. Designation of federal, provincial and private campgrounds as chemical free is ongoing. For more information, visit the Camp Green, Canada!℠ website at http://www.tians.org/campgreencanada/. **Update**

Western Brook Pond is located in the 1 805-square-kilometre Gros Morne National Park, a UNESCO World Heritage site on the western side of Newfoundland. The boat tour on Western Brook Pond attracts 25 000 sightseers to the park annually. The pressure on the ecosystem from the influx of tourists motivated Parks Canada in 2002 to make ISO14001 certification a mandatory component of operating the concession. As a result, in 2002, Norock Associates, on behalf of Bontour Voyages, developed an EMS, and Bontour was the first tour boat operator in the world to be certified ISO14001 compliant. P2 initiatives resulting from the EMS include water conservation, enhanced fuel spill prevention and improved maintenance of washroom fixtures. The operator was awarded the Hospitality Newfoundland & Labrador Sustainable Tourism award in 2002. **New**

Transportation

The Commercial Vehicles Initiative, formerly FleetSmart, is intended to improve the fuel efficiency, reduce GHG emissions and promote the use of alternative fuels in commercial road transportation fleets. Natural Resources Canada provides training and materials to more than 149 000 new and experienced fleet operators and introduced over 1 000 new instructors to the Commercial Vehicles Initiative. For more information, visit the Office of Energy Efficiency website at http://oee.nrcan.gc.ca. **Update**

Transport Canada's Freight Efficiency and Technology Initiative is a five-year initiative under Action Plan 2000 on Climate Change designed to reduce the growth of GHG emissions from the freight transportation sector. Transport Canada leads the $14 million initiative in cooperation with Natural Resources Canada. The initiative consists of three components: the Freight Sustainability Demonstration Program; the development of voluntary agreements with modal associations; and training and awareness. The initiative is aimed at assisting private companies and not for profit organizations in air, marine, rail and truck freight activities. For more information, visit the Transport Canada website at http://www.tc.gc.ca/fsdp.

In November 2002, Transport Canada hosted the second of a series of workshops on operational measures for reducing fuel use by and emissions from the aviation industry in response to the United Nations Framework Convention on Climate Change under the Training and Awareness component of the Freight Efficiency and Technology Initiative. Ninety participants from Canada and around the world attended the workshop. As of March 2003, the Demonstration program funded several projects, mainly related to rail transportation. **New**

Commuter Options: The Complete Guide for Canadian Employers presents practical, proven approaches to increasing the use of active transportation (e.g., walking and cycling), public transit, ridesharing (e.g., carpooling and vanpooling), teleworking and other alternatives that are healthier and less expensive than driving alone to work. The Commuter Options guide and workshop are designed by Transport Canada for use by small, medium-sized or large employers anywhere in Canada, in both the public and private sectors, to help employers develop environmentally friendly means of travelling to work daily. For more

information, visit the Transport Canada website at http://www.tc.gc.ca/programs/Environment/Commuter/menu.htm. New

Training and Awareness

In 2002–2003, in an effort to promote P2 awareness, the Atlantic Canada Opportunities Agency released several outreach documents, including the agency's commitment to sustainable development. One document, a fact sheet, was created to raise awareness of eco-efficiency and the benefits of operating an environmentally responsible business. The agency also provided assistance to the Environmental Industries Association and supported Lean Manufacturing Workshops in Atlantic Canada. The agency's Environmental Industries Policy is in its final draft, and work on the strategy will follow. Update

The Building Sustainable Enterprises initiative supports industry workshops on concepts and tools for implementing eco-efficiency, including Design for the Environment, Life Cycle Management, Environmental Management Systems, Environmental Reporting, Indicators and Supply Chain Management. In March 2003, the second workshop was held in Montreal, attracting approximately 50 participants. Other events are being planned. Industry Canada, Environment Canada, Natural Resources Canada and the National Round Table on the Environment and the Economy participate on the federal Steering Committee. For more information, visit Industry Canada's Building Sustainable Enterprises website at http://strategis.ic.gc.ca/bse-ced. Update

In an attempt to better develop P2 planning consulting capability in Atlantic Region, particularly with respect to P2 planning notices under Part 4 of CEPA 1999, Environment Canada, in partnership with Nova Scotia Department of Environment and Labour, contracted the Canadian Centre for Pollution Prevention to host a one-and-a-half-day practical training course for local consultants in March 2003. Participants received both classroom and shop floor training on how to identify and evaluate P2 opportunities and develop those into usable P2 plans. New

Small and Medium-Sized Businesses

In 2002–2003, Environment Canada—Ontario Region and the Canadian Centre for Pollution Prevention began work on developing an Ontario-based P2 outreach and communication program for SMEs. This project involved surveying industry associations that represent SMEs to determine what P2 tools their members would find most useful and if additional P2 assistance could be provided to the associations. The project has already grown to a national scale, with the creation of the Canadian Pollution Prevention Roundtable SME Pollution Prevention Workgroup, with members from various levels of government, technical assistance providers and industry associations. A new SME P2 website was created and launched with information on regional SME programs across Canada, P2 and EMS resources, funding opportunities, sector-specific information and regulatory links. A new online training tool is being developed that will provide technical advice to SME managers on evaluating financial benefits of P2 proposals and how to successfully sell these projects to their managers. For more information, visit the Pollution Prevention for Small Business website at http://www.c2p2online.com/smep2. New

The Enviroclub℠ Program was developed by Environment Canada—Quebec Region, with financial support from Canada Economic Development and the National Research Council's Industrial Research Assistance Program, to increase awareness of P2 and environmental management at SMEs. The three first clubs completed in 2001 and 2002 involved 30 SMEs. The in-plant projects allowed recurrent annual savings of $1.9 million, with recurrent annual reduction in the following emissions and use of resources: 25 kilotonnes of carbon dioxide equivalent of GHG emissions, more than 40 tonnes of toxic substances (mainly VOCs), 355 000 cubic metres of natural gas, 1.3 million litres of oil products, 51 000 cubic metres of water, 1 000 cubic metres of wood and 219 000 litres of propane. The four Enviroclubs in progress in 2003 involve 50 SMEs. In-plant projects must generate cost savings and reductions in pollution emissions or resource use. Project implementation is assisted by consultants and supported by workshops where SMEs acquire abilities in P2 and environmental management and learn to establish, measure and communicate environmental performance. For more information, visit the Enviroclub℠ website at http://www.enviroclub.ca/. Update

The Toronto Region Sustainability Program is intended to advance the environmental performance of SMEs and manufacturing facilities in P2 and sustainable development. Program objectives include acting to reduce smog precursors and moving to zero generation of toxic wastes. The program is delivered on behalf of Environment Canada—Ontario Region by the Ontario Centre for Environmental Technology Advancement, in partnership with Environment Canada's National Office of Pollution Prevention, Ontario Ministry of the Environment, the City of Toronto and other stakeholders. In the first two years of the program, 27 facilities have completed, or have in progress, P2 assessments, representing the following SME manufacturing sectors: auto parts, chemical specialty, credit card, hospitals, metal finishing, packaging, paint stripping, petroleum products, printing (flexographic plate) and lithographic printing. Each P2 assessment report includes recommendations of subsequent P2 projects that the facility should pursue in order to reduce their pollution emissions. Annual P2 results and savings from the 16 SMEs that have completed the P2 assessments and implemented (or have committed to

implement in the future) the recommendations that were suggested in the P2 assessment reports include 342 tonnes of VOCs, 1.8 kilograms of CEPA toxics, 25 kilograms of heavy metals, 308 tonnes of process wastes, 2.5 tonnes of particulate matter (less than 10 microns), 16.7 grams of mercury recycled, 8 500 tonnes of water and 7 tonnes of GHGs. The average cost savings per SME has been $75 300. For more information, visit the Ontario Centre for Environmental Technology Advancement website at http://www.oceta.on.ca/programs/torsus.htm. **Update**

The Business Water Quality Program is a five-year partnership between Environment Canada, the Regional Municipality of Waterloo and the Ontario Ministry of the Environment. The program educates SMEs on the benefits of P2 planning and the toxics reduction provisions of CEPA 1999, with a primary goal of preventing spills to groundwater, surface water and sewers. In 2002–2003, nine facilities completed a facility review and assessment and realized the following: elimination of nonylphenol ethoxylates, ethylene glycol/chlorinated cleaning solvents and phenolic resin filter paper; reduction of paint sludge; GHG equivalent reductions; reduction in biological oxygen demand, suspended solids and phenols in the wastewater effluent; and water use reduction. To date, 23 SMEs have participated in the program. For more information, visit the Ontario Centre for Environmental Technology Advancement website at http://www.oceta.on.ca/programs/BWQP.htm. **Update**

In early 2003, the Atlantic Canada Opportunities Agency, in partnership with the Burnside Eco-efficiency Centre, conducted eco-efficiency reviews with various businesses in New Brunswick and Nova Scotia. The agency also funded a case study on environmental accounting with a Nova Scotia company. **New**

With the financial support of Industry Canada, the Environmental Supply Chain Management Pilot Project is exploring and developing the capacity for supply chain management to reduce GHG emissions in SMEs. The SMEs collectively comprise 43.7% of the Canadian manufacturing industry GHG emissions and typically are suppliers to larger companies. This is a five-year pilot program that began in May 2001 and is managed by Voluntary Challenge and Registry Inc. Two host companies (Shell and Suncor) have been established. In 2002–2003, a successful workshop involving five SME suppliers was held, providing information on climate change and energy efficiency. Following the workshop, the suppliers used the services provided by the Pembina Institute to further develop their GHG reduction strategies. There are plans for additional workshops and engaging more host companies. For more information, visit the Voluntary Challenge and Registry website at http://www.vcr-mvr.ca/index_e.cfm. **Update**

In fall 2001, Industry Canada launched "Three Steps to Eco-efficiency," a tool that assists small and medium-sized manufacturers to develop an eco-efficiency program through checklists on self-assessment, strategies and cost-benefit analysis. An automated version of the self-assessment tool was published in April 2003. It allows a company to complete a series of online worksheets that assesses the company's eco-efficiency by business function and creates a graphical representation of the results and potential strategies. A downloadable cost-benefit analysis chart is also provided to assist in developing a strategic action plan. For more information, visit Industry Canada's Eco-efficiency website at http://strategis.ic.gc.ca/epic/internet/inee-ee.nsf/vwGeneratedInterE/Home. About 10—20% of the 800 to 1 200 monthly visitors to the eco-efficiency site use the tool. **Update**

Labour

Environment Canada supported the Labour Environmental Alliance Society, a British Columbia-based non-profit organization, to deliver the Cleaners, Toxins and the Ecosystem Project. The project delivered nine workshops to a total of 143 participants and follow-up assistance to institutional work sites in order to help them identify toxic cleaning products and replace them with non-toxic alternatives. Many of the participants were representatives from hospitals, schools, long-term care facilities, hotels, restaurants, transit operations, mills and recreational centres. The multiplier effect is estimated to be as high as 100, meaning that the project likely impacted in excess of 14 000 people. More than 20 000 litres of cleaning products containing toxic chemicals have annually been eliminated as a direct result of this project. In addition, one of the indirect results of the project is the implementation of green purchasing policies, including centralized, controlled cleaning product purchasing, for many facilities. **Update**

Research and Development

Natural Resources Canada, through the CANMET Materials Technology Laboratory, coordinates the Canadian Lightweight Materials Research Initiative, a government-industry–university partnership whose mandate is to develop low-density, high-strength, lightweight materials to achieve weight reductions in ground transportation vehicles, with the goal of reducing GHG emissions through improved vehicle efficiency. During 2002, the laboratory developed a pilot-scale process for seam-welding aluminum tubes. The first process of its kind in North America, this is a significant advancement in tube hydroforming and should lead to greater use of lightweight metals in transportation vehicles. The laboratory also optimized the heat treatment process for A356, an alloy commonly used in the automotive industry, reducing energy consumption by one-third.

Two foundries have already adopted the shorter heat treatment cycle in their production. For more information, visit the Canadian Lightweight Materials Research Initiative website at http://climri.nrcan.gc.ca. **Update**

Technology Partnerships Canada is a technology investment fund operated by Industry Canada. It makes high-risk repayable loans in research, development and innovation. In 2002–2003, the fund invested $132 million in six projects with potential P2 benefits that will leverage an additional $345 million from other sources. Project areas funded include natural gas-powered diesel engines for trucks, aero-derivative stationary gas turbine engines for power generation, advanced metal refining technology with reduced emissions, advanced materials handling processes and equipment, superior septic tank systems for wastewater treatment, innovative bio-based fertilizers, an energy-efficient grain harvesting system, high energy density batteries for clean transportation and other applications. For more information, visit the Technology Partnerships Canada website at http://tpc.ic.gc.ca. **Update**

Industry Canada continues to lead the implementation of the Innovation Technology Roadmap on Bioproducts (formerly the Innovation Roadmap on Sustainable Fuels and Chemicals from Biomass). The Innovation Technology Roadmap on Bioproducts will contribute to Canada's climate change objectives by developing bioproduct alternatives and promoting more environmentally friendly bioprocesses, all of which will contribute to reducing energy and GHG emissions. This activity makes it feasible to reach a reduction target of 23 tonnes per year of carbon dioxide equivalent by 2015. For more information, visit Industry Canada's Technology Roadmaps website at http://www.strategis.gc.ca/trm. **Update**

Atlantic Canada Opportunities Agency's Atlantic Innovation Fund is making strategic investments aimed at increasing Atlantic Canada's innovation capacity. The Fund contributes to projects in the environment sector. These projects involve research in such areas as advanced treatment technologies, monitoring systems and technology that addresses the reduction of GHG emissions. **New**

Upcoming Projects

Canadian Heritage is working with Parks Canada in providing financial incentives for the private sector to preserve heritage buildings as part of the Historic Place Initiative. It is expected that this program, the Commercial Heritage Properties Incentive Fund, will reduce landfill volume by encouraging the renovation rather than the demolition of privately owned heritage buildings. Studies suggest that building demolition waste accounts for about 20% of landfill contents. For more information, visit the Parks Canada website at http://www.pc.gc.ca/progs/plp-hpp/plp-hpp2a_E.asp.

In recent years, the Pulp and Paper Research Institute of Canada (Paprican) has received funding from Natural Resources Canada. Paprican, among other things, studied energy use in pulp and paper mills and identified opportunities to reduce energy use and convert energy sources used in pulp and paper mills from fossil fuel to biomass. The pulp and paper industry has reduced its greenhouse gas emissions from 14 megatonnes/year to 10 megatonnes/year since 1990. It is expected that increased energy efficiency and greater use of biomass could reduce pulp and paper mill emissions by approximately an additional 2 megatonnes. For more information, visit the Paprican website at http://www.paprican.ca.

Natural Resources Canada is also funding Forintek Canada Corp (Forintek), Canada's national wood products research institute. One of the projects of Forintek is to study data and knowledge to improve lumber drying techniques. These techniques will result in energy savings and significant greenhouse gas emission reductions. This project will be completed in July 2004 and is partially funded by Natural Resources Canada's CANMET Energy Technology Centre. According to some researchers, the potential reduction in energy use by dry kilns in Canada would be 335 kilotonnes per year in carbon dioxide emissions. For more information, visit the Forintek website at http://www.forintek.ca.

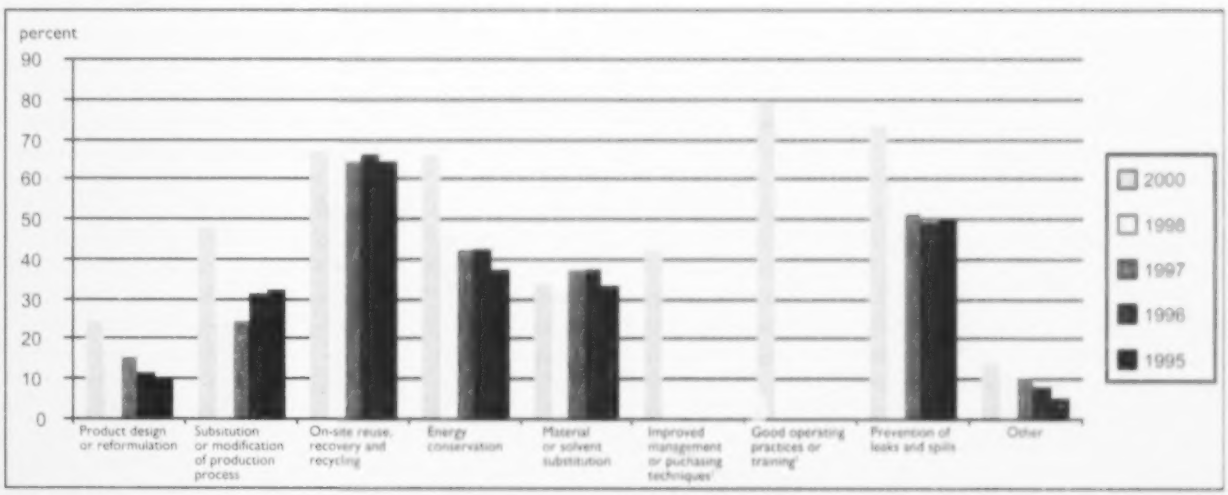
Since 1993, the Canadian Environmental Technology Advancement Centres (CETAC) program supports the development, demonstration and deployment of innovative environmental technologies. Enviro-Access, the Ontario Centre for Environmental Technology Advancement and CETAC-WEST are private sector, not-for-profit corporations that operate with funding and operational support from Environment Canada's Environmental Technology Advancement Directorate. In 2002–2003, 140 companies received business-related services from CETAC to advance their technology in the marketplace. Seven technology demonstration projects were organized. Environmental priorities addressed in these projects focused on clean air, climate change, water quality and toxics reduction. Examples of P2 technologies that have received support include a solar water heating system, mobile technology for cleaning of logging and mining equipment and a system to prevent spillage of drilling fluids around well sites. Environment Canada's Environmental Technology Advancement Directorate oversees the CETAC program.

Western Economic Diversification Canada worked with the Western Canada Business Service Network to develop the Sustainable Business On-line Resources website. The site has been scheduled for launch in fall 2003 and is intended to raise awareness of sustainable development practices among SMEs. Western Economic Diversification Canada will also support a project that will see Canada's first high-voltage operational fuel cell installed at the Northern Alberta Institute of Technology. There is also funding for specialized equipment to build a renewable energy test bed and a fuel cell gas flow diagnostic system at the University of Victoria's Institute for Integrated Energy Systems. Fuel cells generate electricity directly by chemically combining stored hydrogen with oxygen, producing water and heat their only emissions. Fuel cell-based energy devices will generate substantially less GHGs than many other products currently available.

Statistics Canada, through the Survey of Environmental Protection Expenditures (SEPE) collects data on the expenditures and practices made by primary and manufacturing industries, electric power and gas distribution facilities as well as pipeline transportation. With the exception of material or solvent substitution, businesses increased their participation in all other P2 categories listed in the figure below. Almost 80% of businesses reported the use of good operating practices or P2 training*, followed by the prevention of leaks and spills (73%), the 3Rs* (67%) and energy conservation (68%). In 2000, for the first time, the SEPE asked businesses to indicate if they experienced cost savings due to the implementation of environmental management or P2 practices. Across all industries, 38% of establishments that answered reported experiencing cost savings in 2000. The Oil and Gas Extraction Industry had the largest proportion of establishments (75%) reporting cost savings, while businesses in the Logging Industry were least likely to report cost savings (17%).

Update

Use of Pollution Prevention Methods, 1995–2000[1]



Notes:

This figure includes reported data only. The Survey of Environmental Protection Expenditures was not conducted in 1999.

1. Number of establishments indicating that they used the P2 method as a percentage of all establishments that provided a response.

2. Data available only for 2000.

Source:

Statistics Canada, Environment Accounts and Statistics Division.

* *Good operating practices or P2 training and improved management or purchasing techniques were added for the first time on the 2000 Survey of Environmental Protection Expenditures questionnaire.*
'3Rs' refers to on-site reuse, recovery and recycling.

The following table summarizes the linkages to programs and initiatives undertaken in P2 under the federal government's action plan on P2 with the private sector.

Tracking Progress Against Pollution Prevention—A Federal Strategy for Action

Goal: Achieve a climate in which P2 becomes a major consideration in industrial activities.

Actions	Status	Examples
1. Develop innovative P2 programs.	Ongoing	• Mercury Switch Out Program • CleanPrint Canada • Commercial Buildings Incentive Program • Camp Green, Canada™
2. Promote P2 through refocused research, development and demonstration initiatives.	Ongoing	• Wet Clean Demonstration Project • Canadian Lightweight Materials Research Initiative • Sustainable Fuels and Chemicals from Biomass • Intelligent Buildings Technology Roadmap • Star Truck Project
3. Promote the adoption of sustainable production in industrial and manufacturing processes.	Ongoing	• EcoSmart Concrete • Canadian Vehicle Manufacturing Pollution Prevention Project • Metal Finishing Industry Project • Extended Producer Responsibility in the waste associated with information technology
4. Implement economic instruments that will result in P2.	Ongoing	• Methyl Bromide Emission Permit Trading System
5. Help SMEs improve their environmental performance.	Ongoing	• Enviroclub™ • Toronto Region Sustainability Program • Environmental Supply Chain Management • Pollution Prevention for Small Business Website • Canadian Pollution Prevention Roundtable SME Pollution Prevention Workgroup

Progress with the Canadian Public

Federal pollution prevention strategy goal: Provide access to the information and tools necessary to implement pollution prevention practices.

Citizen-Driven Activities

Atlantic Coastal Action Program (ACAP) is a community-based program created by Environment Canada as a means of mobilizing local communities to address their own environmental and developmental challenges. Some examples of 2002–2003 ACAP projects appear below:

- Newfoundland and Labrador communities have been struggling with water shortages for years, but they also consume an average of 450 litres of water per person per day, higher than the national average of 350 litres. With financial support from Eco-Action, ACAP Humber Arm Environmental Association Inc. is implementing a pilot water conservation project in the community of Massey Drive, near Corner Brook, Newfoundland, to reduce overall water consumption by 20% through the provision of retrofit kits (which consist of items such as faucet and showerhead flow reducers, toilet bags to reduce volume of water in the toilet tank, shower flow meter, dye tablets and a dripping water gauge) to 75% of homeowners. Also, 75% community participation is expected in public education events or forums. Project information will be distributed to at least 50 communities throughout Newfoundland and Labrador.

- With financial support from Eco-Action, ACAP Cape Breton, Nova Scotia, undertook a water conservation program to address water usage in the Cape Breton Regional Municipality, estimated at twice the national average. A credit program for installing low-flow toilets is in effect, which credits 200 residents with $100 on their water bill upon proof of installation. A showerhead swap was also implemented. Residents can swap old high-flow showerheads for low-flow models, saving approximately 116 800 litres of water per year. Other components of the project include water meter education, a school outreach initiative for grades 4 to 6, with presentations to 30 schools, and World Water Day promotional activities. These combined initiatives produced an overall water use reduction in participating houses of 20%, or 2.18 million litres per year.

- ACAP Cape Breton created a "Pesticide Free Doctor" team, which visited 100 homes at the residents request to suggest pesticide-free solutions for common lawn and garden pests. As well, ACAP distributed 300 pesticide-free kits at local events and garden centres. These efforts resulted in greater resident awareness of the impacts of pesticide spraying on human health and the environment and of effective alternatives to pesticides, as well as a reduction in overall homeowner use of pesticides.

- In the summer of 2002, ACAP, together with the Conservation Corps of Newfoundland and Labrador, made available half-subsidized residential rain barrels. St. John's-area residents were sold 150 rain barrels to catch rainwater for landscaping/gardening use to reduce the demand on the municipal water supply. Participants were also given information on water conservation and pesticide-free gardening.

- A prominent sight along St. John's harbour in Newfoundland is ACAP's latest billboard encouraging citizens to stop flushing toxic and inappropriate substances down the drain. The message is part of a campaign on source control, which also included a seminar entitled "Exploring pollution prevention opportunities in municipal wastewater". Over 75 government staff, environmentalists, students and concerned citizens attended to discuss P2 and source control with a variety of experts from throughout Atlantic Canada.

"In the summer of 2002, ACAP, together with the Conservation Corps of Newfoundland and Labrador, made available half-subsidized residential rain barrels."

What Is Sustainable Consumption?

Sustainable consumption is defined as "the use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations."[1]

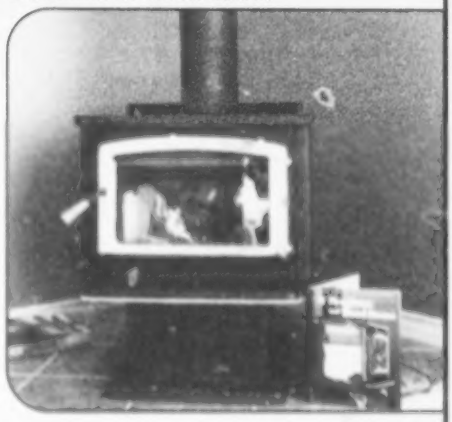
In June 2002, Environment Canada hosted the second meeting of the North American Sustainable Consumption Alliance Workgroup. The North American Sustainable Consumption Alliance is a strategic partnership of people and organizations that are working to promote more sustainable consumption patterns in Mexico, Canada and the United States. One of the Alliance's goals is to facilitate the shaping of a common North American vision of sustainable consumption. Activity following this meeting has centred around the development of a web-based database of activities and initiatives in the area of sustainable production and consumption in North America, with the support of the Commission for Environmental Cooperation. The goal of the database is to facilitate cooperation among organizations in North America that are interested in promoting sustainable consumption, by providing information about activities or initiatives that they could replicate, support or join. At the World Summit for Sustainable Development held in Johannesburg, South Africa, in August 2002, sustainable consumption was identified as a global priority with participating Nations committing to develop a Ten Year Framework for Sustainable Consumption. This is being managed by the United Nations Environment Program.

Public Awareness Campaigns

Between 1999 and 2003, Natural Resources Canada led a multistakeholder committee in designing and implementing a national wood heat education campaign called Burn it Smart. At the World Summit for Sustainable Development, held in Johannesburg, South Africa, sustainable consumption was identified as a global priority, with participating nations committing to develop a Ten Year Framework on Sustainable Consumption, which will be managed by the United Nations Environment Programme. Similarly, under a clean air commitment made by federal, provincial and territorial officials, the CCME agreed in 1999 to cooperate on a number of initiatives to reduce air pollution, including emissions from wood-burning appliances. The campaign was created to promote safer, cleaner and more efficient wood-burning practices for those who heat their homes with wood or use it for recreational purposes. The campaign was launched nationally in September 2002. By the end of March 2003, approximately 5 800 Canadians attended one of the more than 300 workshops held in over 200 communities across Canada. Environment Canada guided implementation of the workshops in several provinces. For more information, visit the Burn it Smart website at http://www.burnitsmart.org. **New**

The Healthy School Program identifies indoor and outdoor air pollution sources that schools can address through policy decisions on, for example, reduction of bus and vehicle idling times, implementation of scent-free policies, greening of school properties, chemical-free pest control practices, waste reduction initiatives and energy efficiency programs. With the financial support of Environment Canada's Eco-Action program, the New Brunswick Lung Association completed a pilot project at one school and now aims to have over 20 schools involved in the program, including schools in First Nations communities. **Update**

"By the end of March 2003, approximately 5 800 Canadians attended one of the more than 300 Burn It Smart workshops held in over 200 communities across Canada."



As part of its effort to promote awareness of sustainable transportation issues, Transport Canada funds projects through the Moving On Sustainable Transportation program. The program is guided by an advisory committee consisting of representatives from Transport Canada, Environment Canada, Health Canada, Public Works and Government Services Canada and the Air Transportation Association of Canada. Since the program's inception in September 1999, approximately $1.8 million has been allocated towards 57 sustainable transportation-focused projects that provide Canadians with practical information and tools for better application of sustainable transportation thinking to their daily lives. **New**

Transport Canada's Advanced Technology Vehicles Program promotes the adoption of sustainable transportation technology to increase public understanding of advanced technology vehicles through inspections, vehicle testing and awareness-raising events. As of March 31, 2003, the department had acquired 87 advanced technology vehicles, conducted 352 vehicle evaluations and held 76 public awareness events. It is estimated that over 3.8 million Canadians were made aware of the Advanced Technology Vehicles

[1] *Symposium—Sustainable Consumption. Oslo, Norway, January, 1994*

Program through print media, television, radio, live Internet and major events such as auto shows, conferences and other public functions. For more information, visit the Transport Canada website at http://www.tc.gc.ca/atvp/. New

Eastern Charlotte Waterways Inc., in New Brunswick, has successfully reopened Letang Harbour, a site that has been closed since the 1960s due to unacceptable bacteriological water quality, for commercial and recreational clam digging. This was accomplished through joint cooperation with the local clam diggers association, municipalities and federal and provincial agencies by reducing the inputs of sewage into the harbour by taking steps to educate the public and monitor, prevent and control possible problems in the harbour. Eastern Charlotte Waterways Inc. won the New Brunswick Leadership Award last fiscal year for its ongoing efforts to maintain the natural environment of Letang Harbour. New

The Community Animation Program is a joint initiative of Health Canada and Environment Canada to contribute to the sustainability and health of Canadian communities. In 2002–2003, the Community Animation Program supported several initiatives in Quebec. For example, in the area of Saguenay–Lac St-Jean, efforts are under way to reach and encourage over 8 600 people to adopt practices that reduce energy use and solid waste. In the Eastern Townships, efforts are focused on encouraging drivers to reduce idling time and municipal officials to adopt anti-idling by-laws. In the Beauport River area, youth are becoming involved in the preservation of water resources. New

In 2002, the Ecology Action Centre, with the help of the Environment Canada Clinic Team, organized a vehicle emissions testing clinic in Halifax. The clinics are an opportunity to survey motorists on driving habits, maintenance practices and awareness of the environmental effects of emissions and idling. Of the 341 vehicles tested, 309 (90.6%) passed the emissions test, while 25 (7.3%) exceeded either the hydrocarbon or carbon monoxide limits. Also in 2002, Environment Canada conducted 30 separate clinics across Canada, testing more than 5 900 vehicles, while the Miramichi River Environmental Assessment Committee hosted a vehicle emissions clinic with the New Brunswick Lung Association to promote cleaner car emissions and better mileage through tire inflation. In all cases, those whose vehicles failed the emissions test were given information on what might be causing the high emissions and were encouraged to have the vehicles repaired. New

"In 2002, the Ecology Action Centre, with the help of the Environment Canada Clinic Team, organized a vehicle emissions testing clinic in Halifax."

Canadian Environmental Protection Act (CEPA) Environmental Registry

The CEPA Environmental Registry is a comprehensive source of public information relating to activities under CEPA 1999. In addition to providing up-to-date copies of current CEPA instruments, the primary objective of the Environmental Registry is to encourage and support public participation in environmental decision-making, by facilitating access to documents arising from the administration of the Act. To access the Registry, visit http://www.ec.gc.ca/ceparegistry/.

Access to Information

The Environmental Choice™ Program is managed and developed by TerraChoice Environmental Services Inc. on behalf of Environment Canada. The Environmental Choice™ Program is an eco-labelling program that helps individuals, corporations and governments make informed purchasing decisions to reduce their environmental impacts. Over 3 000 brand name products in approximately 140 product categories now bear the Environmental Choice™ Program's EcoLogo, including products such as tires, cleaners, office equipment and paints, as well as services such as printing and carwashes. Recently, a certification criteria document for renewable low-impact electricity was developed for the program. For more information, visit the Environmental Choice™ Program website at http://www.environmentalchoice.com.

The Canadian Pollution Prevention Information Clearinghouse is an Internet tool that links Canadians with the resources they need to practise or support P2. It provides access to over 1 400 P2 materials, such as technical reports, guides, regulations and training materials. The Canadian Pollution Prevention Success Stories website recognizes Canadian companies and organizations that have effectively implemented P2 in their business operations. Currently, the website highlights the P2 accomplishments of over 95 businesses. Environment Canada is responsible for the growth and maintenance of both these websites, which continue to provide Canadians with excellent access to P2 information. For more information, visit the Canadian Pollution Prevention Information Clearinghouse website at

http://www.ec.gc.ca/cppic or the Canadian Pollution Prevention Success Stories website at http://www.ec.gc.ca/pp. **Update**

The sixth annual Canadian Pollution Prevention Roundtable was held in Quebec City in April 2002. The Roundtable is a recognized opportunity to strengthen partnerships and advance P2. Program areas included P2 and Industrial Sectors, Municipal P2, Small Business P2 Programs, Government Leadership, Communication and Program Delivery and Making Connections between P2 and Environmental Management Strategies. Some noteworthy presentations included Collecting National P2 Data, Municipal Wastewater Effluents, Connecting P2 and Environmental Management Systems and Building a North American Sustainable Consumption Alliance. Over 140 participants, representing businesses, consultants, universities, governments, labour, youth and non-government organizations, discussed P2 issues and celebrated Canadian achievements. The Roundtable experienced its best international representation in its six-year life, with eight participants representing the United States and Mexico. Two workgroups, the Municipal P2 and P2 Planning, met at the Roundtable to discuss common P2 interests and collaborate on future activities. With support from Environment Canada, the Canadian Centre for Pollution Prevention, a non-profit organization, coordinates the Roundtable. For more information, visit the Canadian Centre for Pollution Prevention website at http://www.c2p2online.com/CPPR. **Update**

Addressing Climate Change

The Government of Canada's 2002 Climate Change Plan sets out a three-step approach for achieving Canada's climate change objective of reducing annual GHG emissions by 240 megatonnes. First, there are the investments to date that will address one-third of the total reduction (80 megatonnes). Second, it articulates a strategy for a further 100-megatonne reduction. Finally, it outlines a number of current and potential actions that should enable Canada to address the remaining 60-megatonne reduction. The Plan identifies action in five broad areas: transportation, housing and commercial/institutional buildings, large industrial emitters, SMEs, and the international market. For more information, visit the Government of Canada's climate change website at http://www.climatechange.gc.ca. **Update**

The international ENERGY STAR® symbol is a simple way for consumers to identify products that are among the most energy-efficient on the market. Only manufacturers and retailers whose products meet the ENERGY STAR criteria can label their products with this symbol. In Canada, Natural Resources Canada's Office of Energy Efficiency administers and promotes the international ENERGY STAR symbol for a wide range of energy-using products sold in Canada. By choosing an ENERGY STAR-qualified appliance, consumers can save up to 260 kilowatt-hours* of electricity per year. That's more than enough energy to run a dishwasher 100 times. In a survey done in the fall of 2002, 15% of respondents indicated unaided recognition of the ENERGY STAR symbol, while 27% were able to recognize it with retailer assistance. Promotional activities have involved joint marketing efforts with equipment distributors,

"By choosing an ENERGY STAR®-qualified appliance, consumers can save up to 260 kilowatt-hours of electricity per year."

retailers, different levels of government and industry groups. For more information on the products available, visit the ENERGY STAR website at http://energystar.gc.ca. **Update**

The EnerGuide for Houses Initiative encourages Canadians to improve the energy efficiency of their homes when undertaking home renovation and maintenance projects. As of March 2003, over 17 500 houses were audited and labelled, and the average energy consumption of homes improved by 19% or 2.4 tonnes of carbon dioxide reduced per home per year on average. Typical upgrades can include increased insulation in walls and attic, basement insulation, improved windows and doors, furnace efficiency upgrades, hot water efficiency upgrades, air sealing and installation of a heat recovery ventilation unit. Natural Resources Canada provides national coordination, technical support, software tools and training for the home energy audits. For more information, visit the EnerGuide for Houses website at http://oee.nrcan.gc.ca/houses-maisons. **Update**

One kilowatt-hour is the amount of electrical energy supplied by one kilowatt over a one-hour period and is equivalent to running an energy-efficient refrigerator for half a day.

Climadapt Network

Environment Canada—Atlantic Region is a member of a network of federal, provincial, municipal and private interests developed in Nova Scotia to promote awareness of and action on how to adjust to and accommodate climate changes that are occurring and will occur in the future (temperature changes, more extreme weather events, etc.). Some of the main objectives include incorporating Climadapt guidelines into environmental assessments (currently under contract with the Canadian Environmental Assessment Agency), factoring climate change adaptation risks into development guidelines and insurance companies' premium ratings, promoting modification of building codes and public outreach programming. Such early action should improve design and development decisions that will minimize adverse environmental impacts, rather than require future remedies. This is a long-term P2 initiative.

Engaging Youth

In 2002–2003, Environment Canada — Ontario Region developed a P2 education campaign that involved a number of demonstrations aimed at educating schoolchildren about water pollution and the importance of preventing groundwater contamination. Specific events included the Children's Water Festival in York Region, where over 4 000 students (grades 2 to 5) participated in the four-day educational event. P2 was also integrated into the Great Art for Great Lakes program. **New**

"In 2002–2003, the YRTE met with the federal Minister of the Environment on Parliament Hill and brought forth its proposal for a Youth Engagement Strategy on Climate Change."

Started in 1997, the Youth Round Table on the Environment (YRTE) is an active, non-partisan forum that brings together young Canadians of diverse regional, cultural, educational and linguistic backgrounds. During a one-year term, which begins in September, the group, which includes up to 18 young people, meets up to three times a year to provide input on Environment Canada's programs and policies and to advise on ways to make these programs more accessible to youth. In 2002–2003, the YRTE met with the federal Minister of the Environment on Parliament Hill and brought forth its proposal for a Youth Engagement Strategy on Climate Change. The YRTE also had discussions on the Environmental Bill of Rights and on integrating a youth position at the National Round Table on the Environment and the Economy. For the coming year, 2003–2004, the YRTE will be focusing on issues such as Environmental and Social Justice, Greening Economics, Stewardship Education, Living Spaces Both Urban and Rural and Climate Change. The YRTE prepares an annual report, which is available on the Environment Canada website at http://www.ec.gc.ca/youth/. **Update**

The Computers for Schools program collects, repairs and refurbishes donated surplus computers from government and private sector sources and distributes them to schools. The program, managed by Industry Canada, has a total of 69 centres throughout Canada where computers are cleaned, refurbished and prepared for delivery or recycled if unusable. The Computers for Schools program has met its "Millennium Challenge" of delivering more than 250 000 computers to schools and libraries throughout Canada at no charge. The program's current goal is to deliver more than 60 000 quality computers each year to Canadian schools and libraries. The Computers for Schools program is considered a "best practices" program for keeping often potentially toxic material out of landfill sites. To view success stories across Canada, visit the Computers for Schools website at http://cfs-ope.ic.gc.ca/. **Update**

"The Computers for Schools program's current goal is to deliver more than 60 000 quality computers each year to Canadian schools and libraries."

Upcoming Projects

The National Office of Pollution Prevention is currently developing a resource package for Canadian elementary and secondary school educators. The package includes complete lesson plans, student activities, evaluation materials and resources for background information. The lesson plans link to provincial and territorial curriculum standards to facilitate easy implementation in existing courses and units of study.

The following table summarizes the linkages to programs and initiatives undertaken in P2 under the federal government's action plan on P2 with individual Canadians.

Tracking Progress Against Pollution Prevention—A Federal Strategy for Action

Goal: Provide access to the information and tools necessary to implement pollution prevention practices.

Actions	Status	Examples
1. Provide information that illustrates how P2 fits into daily activities.	Ongoing	• Canadian Pollution Prevention Success Stories • Eco-Action program • Canadian Centre for Pollution Prevention • Youth Round Table on the Environment
2. Create a national P2 clearinghouse.	Complete	• Canadian Pollution Prevention Information Clearinghouse
3. Encourage consumers to use their purchasing power to promote P2.	Ongoing	• Environmental Choice Program • ENERGY STAR® program • EnerGuide for Houses

Progress with the International Community

Federal pollution prevention strategy goal: Participate in international pollution prevention initiatives.

International Agreements and Technology Transfer

In December 2002, the Government of Canada announced its ratification of the Kyoto Protocol to the United Nations Framework Convention on Climate Change. In December 1997, Canada and more than 160 other countries met in Kyoto, Japan, and agreed to targets to reduce GHG emissions. The agreement that set out those targets, and the options available to countries to achieve them, is known as the Kyoto Protocol. Canada's target is to reduce its GHG emissions to 6% below 1990 levels by the period between 2008 and 2012. **Update**

In May 2001, the Government of Canada, in keeping with its obligation under the Stockholm Convention on Persistent Organic Pollutants (POPs)[1], provided $20 million to the Canada POPs Fund. Through the Canadian International Development Agency (CIDA), the Canada POPs Fund provides financial support, technical expertise, knowledge and access to technology that is necessary to assist, encourage and equip developing countries and countries with economies in transition to build their own capacity to reduce or eliminate releases of POPs. Even though Canada has banned or restricted their use, most POPs of concern are transported from foreign sources through the atmosphere into Canada, where they accumulate in our food chain. Because of atmospheric circulation, POPs travel great distances from their sources, posing significant risks to the health of Canadians, particularly northern Aboriginal populations, due to their dependency on traditional foods. Now entering its third year, the fund has supported over 70 projects. It has helped establish the Africa Stockpile Initiative, which will help African countries to inventory, store and destroy obsolete pesticides. For more information on the Stockholm Convention, visit the United Nations Environment Programme website at http://www.chem.unep.ch/pops/default.html. **Update**

CIDA manages the five-year, $100 million Climate Change Development Fund on behalf of the Government of Canada. Through this fund, CIDA promotes, facilitates and/or finances the transfer of environmentally sound technologies that address the causes and effects of climate change in developing countries, while at the same time contributing to sustainable development and poverty reduction. The fund's four programming areas are emission reductions, carbon sequestration, adaptation to adverse impacts of climate change and core capacity-building. Current projects that will make a significant contribution to P2 include upgrading the fuel combustion systems used in the brick-making sector in Egypt in an effort to reduce air pollution; reducing GHG emissions through energy management in Brazilian industry; the promotion and use of fly ash (a waste product generated by coal-burning plants) in concrete production in India, thereby reducing the use of Portland cement, a high carbon dioxide-generating substance; promoting the use of renewable energies in several countries in Asia and the Americas; and reducing industrial GHG emissions in South Africa and Mozambique. **Update**

Foreign Affairs and International Trade created the Clean Development Mechanism and Joint Implementation Office in 1998. The Office assists Canadian companies in exporting climate change technology and expertise as well as obtaining emissions reduction credits. To date, the program is on target to achieve its long-term objective of reducing GHG emissions by 20 megatonnes annually. **Update**

Canada works in cooperation with the governments of Mexico and the United States on how to reduce the exposure of North American ecosystems to mercury through the prevention and reduction of releases of mercury to the environment. Canada continues to play a leading role in the development and implementation of the North American Regional Action Plan on Mercury. For more information, visit Environment Canada's website at http://www.ec.gc.ca/mercury. **New**

As part of the Climate Change Action Fund, Technology Early Action Measures (TEAM) offers support to federal programs that fund technology projects to reduce GHG emissions nationally and internationally, while sustaining economic and social development. TEAM began with an initial investment of $60 million over three years (1998–2001) from the Climate Change Action Fund and has been extended for another three years, through 2003–2004, with an additional $35 million. TEAM will assign top priority to projects that demonstrate significant financial partnering with a number of interested parties, such as the private sector, provinces and municipalities. For a listing of TEAM delivery projects, visit the Government of Canada's Climate Change website at http://www.climatechange.gc.ca/english/actions/action_fund/techno.shtml. **Update**

To establish the best available practices in life cycle assessment, the United Nations Environment Programme and the Society of Environmental Toxicology and Chemistry hosted an international workshop on life cycle assessment in April 2002. This workshop was also sponsored by Natural Resources Canada, Asia-Pacific Economic Cooperation and the International Council of Metals and was attended by 60 experts. Life cycle assessment can be used to identify opportunities for P2 by comparing

[1] *The Stockholm Convention targets a list of 12 POPs known as the "dirty dozen." These POPs are in three broad categories: a) industrial chemicals (e.g., polychlorinated biphenyls); b) by-products and contaminants (e.g., dioxins and furans); and c) pesticides (e.g., DDT, chlordane).*

the potential environmental impact of the current situation with an alternative. Various models used to calculate the potential impacts of metal production and emissions were discussed in order to identify gaps and suggest improvements. Natural Resources Canada provided scientific direction and organizational logistics support on this project. The proceedings of the conference included 36 peer-reviewed scientific papers. **Update**

Cities Planning for Long-term Urban Sustainability, or CitiesPLUS, is the name of the international competition for urban sustainability. The intent of the competition organizers was to build on the potential of natural gas and its technologies to meet growing energy needs, mitigate climate change and create alliances with other industries and sectors to meet the challenges of sustainable development. The competition involved nine teams from around the world, each preparing a staged 100-year plan for a major metropolitan area. CitiesPLUS involved various scenarios and workshops to integrate the results into a regional sustainable urban systems plan in order to identify policies and make recommendations. In 2002–2003, Western Economic Diversification Canada supported CitiesPLUS. For more information, visit the CitiesPLUS website at http://www.citiesplus.ca. **New**

International Pollution Prevention Activities

The Canadian Pollution Prevention Roundtable formed an international partnership with the United States Pollution Prevention Roundtable and the Mexican Pollution Prevention Roundtable to promote P2 policy, capacity-building and environmental leadership efforts throughout North America. This partnership, a mechanism to build relationships and facilitate collaboration and coordination, will contribute to the development of a seamless global network of easily accessible, high-quality cleaner production information. Throughout 2002–2003, with financial support from the North American Commission for Environmental Cooperation, the chairs and delegates of the North American P2 roundtables, including Environment Canada and the Canadian Centre for Pollution Prevention, met regularly to identify initiatives of common interest. Efforts have been focused on developing an EMS Workshop Session, a P2 Policy document and a workplan for a corporate environmental stewardship program in the electronics sector. At the end of 2002–2003, a proposal was submitted to CIDA to explore the potential for expanding the partnership into a Hemispheric Alliance of Pollution Prevention by developing stronger linkages with the São Paulo Cleaner Production Roundtable in Brazil. **Update**

The Great Lakes Regional Pollution Prevention Roundtable is a networking organization dedicated to promoting information exchange opportunities between Canada and the United States. In August 2002, Environment Canada–Ontario Region hosted the annual Great Lakes Regional Pollution Prevention Roundtable summer conference in Toronto. The conference was attended by 140 P2 practitioners from the United States and Canada. P2 training for local government officials was offered, as well as site tours of DaimlerChrysler's Brampton assembly plant and the Royal York Hotel's environmental program. **New**

In 2002–2003, Foreign Affairs and International Trade undertook a project to install solar water heaters at all of Canada's staff quarters in Dar-es-Salaam in Tanzania, Africa. This initiative will significantly reduce energy consumption and will result in cost savings, especially as energy prices continue to rise. **New**

The Pollution Prevention World Information Network (P2WIN) connects and serves as a virtual meeting place for P2 roundtables, cleaner production networks and other organizations committed to advancing cleaner production and sustainability issues. It is an evolving network–a partnership between governments, the private sector, non-government organizations and academics that links and supports the P2 community while reaching out to new partners, such as organizations dealing with energy efficiency, finance and sustainable consumption. The initiative commits roundtables in the Americas, Asia-Pacific, Africa, Eastern and Central Europe and China to creating a permanent network that encourages ideas and innovation–a true Roundtable of Roundtables. In 2002–2003, three P2WIN workshops were delivered to members of the Canadian, Mexican and U.S. P2 roundtables. The workshops provided background information on P2WIN, highlighting some of the services and features, as well as facilitated a discussion from a user's perspective on what the expectations are for P2WIN. Work is now under way to strengthen the North American node within P2WIN by addressing the feedback received from the workshops. For more information, visit the P2WIN website at http://www.p2win.org/.

Canada's Participation in the World Summit on Sustainable Development

The 2002 World Summit on Sustainable Development, which took place in Johannesburg, South Africa, brought together people from around the world to focus global attention on actions to achieve sustainable development. In preparing for the World Summit on Sustainable Development, the report "Progress Towards a Sustainable Development Strategy for the Government of Canada" was produced. This document provides an overview of the federal government's sustainable development initiatives, a synthesis of current departmental sustainable development strategies and a vision and principles for moving forward.

A Political Declaration entitled the "The Johannesburg Declaration on Sustainable Development" was negotiated at the Summit. The declaration affirms the central importance of sustainable development to the world community and calls for united action by governments and all partners to address poverty and reduce global divides. "A Plan of Implementation" was also created, which outlines actions to be taken in specific areas of sustainability. For example, one element of the plan of implementation is a commitment by participating nations to a "10 Year Framework for Sustainable Consumption." Environment Canada is the point of contact for the program. Canada also committed to a number of partnerships for sustainable development, which consist of a series of commitments and action-oriented coalitions to further the implementation of sustainable development. For further information, visit the World Summit on Sustainable Development website at http://www.wssd-smdd.gc.ca/. **Update**

The following table summarizes the linkages to programs and initiatives undertaken in P2 under the federal government's action plan on P2 with the international community.

Tracking Progress Against Pollution Prevention—A Federal Strategy for Action

Goal: Participate in international P2 initiatives.

Actions	Status	Examples
1. Stimulate a shift to P2 in international organizations.	Ongoing	• G-8 Summit • United Nations Environment Programme • Pollution Prevention World Information Network
2. Incorporate P2 into international standards.	Ongoing	• Canada–China cooperative project to share P2 planning information
3. Advance P2 through international protocols and agreements.	Ongoing	• Canada–U.S. Air Quality Agreement • Kyoto Protocol • North American Pollution Prevention Partnership • POPs agreement

Trends and Future Opportunities

"Thinking globally—acting strategically": Canada continues with its commitment to place pollution prevention in the mainstream of daily decision-making.

Canada's strong commitment to the global issue of climate change was solidified with the 2002 ratification of the Kyoto Protocol to the United Nations Framework Convention on Climate Change. The Climate Change Plan for Canada, a three-step approach for achieving Canada's climate change objectives, includes a range of investments, outreach and financial incentives. The federal Pollution Prevention Strategy is well positioned for catalyzing climate change action by promoting the use of processes, practices, materials, products, substances and energy that avoid or minimize the creation of pollutants and waste, such as GHG emissions. International initiatives such as P2WIN will provide Canada with a forum to share its successes and challenges on GHG emission reduction, as well as learn from other nations on what improvements are possible.

This report, *Progress in Pollution Prevention 2002–2003*, demonstrates the Government of Canada's commitment to "institutionalize pollution prevention across all federal government activities," as stated in *Pollution Prevention—A Federal Strategy for Action*.

The Government of Canada remains committed to responding to the priorities of Canadians: protecting the environment and human health through strong and innovative partnerships. The Government of Canada will continue to work in partnership with other governments, Aboriginal communities, businesses, academia and all Canadians to promote cleaner air and water, to reduce risks from environmental threats and hazards and to achieve climate change goals.

Members of P2C2 have demonstrated leadership in developing and setting best practices as well as specific performance measures through policies, programs and internal EMSs. P2 is an integral part of this effort, and the organizational learning process associated with collecting performance data and reporting results will remain a priority. To further enhance this learning process, all federal departments are encouraged to record and track the results of their P2 efforts during the year for inclusion in upcoming progress reports.

Acting strategically on Canada-wide issues, the CCME will remain the forum for facilitating federal, provincial and territorial collaboration on environmental priorities of national concern. Through the CCME, Environment Canada is working with its provincial and territorial counterparts on air and water quality. Health department officials are also involved in initiatives on a case-by-case basis, recognizing the close link between human health and the environment.

Budget 2003 provides Environment Canada with $75 million over the next two years to address the legacy of unassessed chemicals in the Canadian marketplace. The Toxics Management Process is reflective of the new approaches being taken to develop management measures, including preventative or control instruments for substances that are determined to be toxic under CEPA 1999.

In Canada, there are several voluntary public—private challenge programs that address issues such as energy efficiency, smog, toxic emissions, wastewater effluent and GHG emissions. Lessons learned from these programs are now being used as a basis for renewing and strengthening the commitment to P2 in a manner that will significantly reduce environmental impact and encourage innovation across a wider range of business activities in Canada. In the case of SMEs, there is a renewed effort to meet the challenges associated with reaching, mobilizing and engaging this significant sector of the Canadian economy in environmental activities.

In 2002, a national survey commissioned by the Sustainability Network found that the majority of Canadians believe they need to know more to make environmentally informed decisions. Only 4% of Canadians felt they know all they need to know about the environment to make day-to-day decisions, 28% say they know most of what they need to know and 66% knew either some or very little. Canadians need strong leadership from government to highlight the breadth of activities that help to protect the environment. The goal of fostering informed decision-making on sustainable activities is achievable if leadership is provided to generate, acquire and disseminate knowledge to deliver innovative and responsive services internally and to Canadians. Access to information, tools and funding is essential to encourage people to make responsible decisions about the environment, ensuring that the environment is thereby sustained for the benefit of present and future generations.

The Government of Canada welcomes all Canadians to become active in "thinking globally–acting locally" by furthering the P2 approach. By continuing with a coordinated effort towards the goal of avoiding the creation of pollutants, Canadians will protect the health of the environment and secure a sustainable economy for generations to come.

Working Towards Results: Pollution Prevention—A Federal Strategy for Action

Target Sector	Strategy Goal	Trends and Future Opportunities
Federal government	Institutionalize P2 across all federal government activities.	• **Trend:** Strengthened partnerships between federal departments and greater emphasis on integrating a P2 approach within policies, programs and tools. • **Future Opportunity:** Further expand federal department participation in upcoming Progress in Pollution Prevention Reports and ensure that measurable results of all projects are identified.
Other governments	Foster a national P2 effort.	• **Trend:** Developing Canada-wide Standards. • **Future Opportunity:** Assisting municipalities in the identification and implementation of P2 approaches.
Private sector	Achieve a climate in which P2 becomes a major consideration in private sector activities.	• **Trend:** Continued commitment to public–private pollutant reduction challenge programs. • **Future Opportunity:** Improving the environmental performance of SMEs, with more emphasis on product-focused policies.
All Canadians	Provide access to the information and tools necessary to implement P2 practices.	• **Trend:** Increased provision of P2 information and successes. • **Future Opportunity:** Enhancing the consumer's ability to make sustainable consumption choices.
International community	Participate in international P2 initiatives.	• **Trend:** Sharing information on P2 activities. • **Future Opportunity:** Building the capacity of developing countries to "leapfrog" to best practices.

To view *Pollution Prevention — A Federal Strategy for Action*, visit http://www.ec.gc.ca/pollution/strategy

On the Internet, view this report at http://www.ec.gc.ca/p2progress

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Lynne Robinson-Lewis (alternate Chairperson)
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Brad Cumming/Ron Nobes — Ontario Region
Cheryl Baraniecki — Prairie and Northern Region
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Communication Research Centre Canada
Correctional Services Canada (first year reporting)
Economic Development Canada
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List of Acronyms

ACAP	Atlantic Coastal Action Program
ATF	Alternative Transportation Fuel
B.-C.	British Columbia
CCME	Canadian Council of Ministers of the Environment
CEPA 1999	*Canadian Environmental Protection Act, 1999*
CETAC	Canadian Environmental Technology Advancement Centres
CFIA	Canadian Food Inspection Agency
CIDA	Canadian International Development Agency
CIPEC	Canadian Industry Program for Energy Conservation
CitiesPLUS	Cities Planning for Long-term Urban Sustainability
CRC	Communications Research Centre Canada
CSC	Correctional Services Canada
E2	Environmental Emergency
EA	Environmental Assessment
EERP	Environmental Emergency Response Plan
EMS	Environmental Management System
EPA	Environmental Performance Agreement
E-85	85% Ethanol
FBI	Federal Buildings Initiative
FCEMS	Federal Committee on Environmental Management Systems
GHG	Greenhouse Gas
HRDC	Human Resources Development Canada
ISO	International Organization for Standardization
MARPAC	Maritime Forces Pacific (National Defence)
NPA	National Programme of Action for the Protection of the Marine Environment from Land-based Activities
NPRI	National Pollutant Release Inventory
ODS	Ozone-Depleting Substance
P2	Pollution Prevention
P2C2	Pollution Prevention Coordinating Committee
P2WIN	Pollution Prevention World Information Network
PM	Particulate Matter
POPs	Persistent Organic Pollutants
PSL1	First Priority Substances List
PSL2	Second Priority Substances List
RCMP	Royal Canadian Mounted Police
SDGO	Sustainable Development in Government Operations
SEPE	Survey of Environmental Protection Expenditures
SMEs	Small and Medium-Sized Enterprises
TEAM	Technology Early Action Measures
VOC	Volatile Organic Compound
YRTE	Youth Round Table on the Environment

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